VAJIRAM & RAVI
Institute for IAS Examination

The Analyst

CURRENT AFFAIRS Handout

30th April 2025

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30th April 2025

Pegasus: Privacy vs National Security

CONTEXT: The Supreme Court is examining whether the Indian government illegally used Pegasus spyware.

What is Pegasus Spyware?

Israeli **military-grade** spyware

Spyware — **Malicious software** designed to *monitor* and *steal* **information** from a user's device without their knowledge or consent

Developer — **NSO Group**, Israel (est. 2010)

Entry Points — **Zero-click** vulnerabilities

Stealth / **Technical Features**

Feature	Explanation
Zero-Day Exploit	Undiscovered vulnerability; no known patch
Rooting/ Jailbreaking	Gains administrative control over device
Toolkits Used	NSO tools like *Hummingbird*, with modules like *Heaven*, *Eden*, *Erised* used for WhatsApp exploitation

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Real-World Usage & Controversy

Pegasus Project (2021)
300+ Indian phone numbers
- Union Ministers, Opposition Leaders
- Journalists, Lawyers
- Human Rights Activists
- Election Commissioners, Scientists


Rahul, Prashant Kishor, ex-EC Lavasa on list of spyware targets
Analysis confirms Pegasus attack or attempts on 10 Indian numbers, says report
Decoding Pegasus
Illegal spying not possible in India: Minister

Bhima Koregaon Case (2019)
Allegations that Pegasus was used against lawyers and activists

WhatsApp Case (U.S. Court)
- NSO accused of infecting 1,400 WhatsApp users, including 300 from India

Key Arguments in Court

A. *Government's Stand* (SG Tushar Mehta)
- Terrorists/anti-nationals
- national security justifies surveillance
- No pubic report

B. *Petitioners' Stand* (Sibal, Divan, Dwivedi)
- Technical Committee (2022) be made public
- US court ruling
- Article 21

Indian Legal Framework on Surveillance

Telecom Act, 2023 (Sec 20(2))	**Takeover of telecom networks** during emergencies
Indian Telegraph Act & Rule 419(A)	Requires government authorization for **call interception**
IT Act, 2000 (Sec 69)	Interception, monitoring, decryption of computer data
DPDP Act, 2023	**Personal data protection** – consent, accountability, breach reporting, user rights

International Legal Landscape

Law/Treaty	
Budapest Convention on Cybercrime	India is **NOT a signatory**
UN Group of Governmental Experts	Cyber behaviour
US Computer Fraud & Abuse Act (1986)	Used to sue NSO Group for WhatsApp hack

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! Concerns Around Pegasus and Surveillance

Concern	Explanation
Right to Privacy	Surveillance vs A21 (**KS Puttaswamy Judgment (2017)**)
Freedom of Speech	**Threat of being watched** = silence dissent (*A19(1)(a)*)
Lack of Oversight	No **parliamentary/judicial monitoring** of executive surveillance powers
No Legal Recourse	**Victims don't know they're surveilled** – can't approach courts (A32/226)
Executive Overreach	Even **SC judges, journalists, election commissioners** allegedly targeted
Fearful Society	Surveillance **chills free thought**, stifles journalism and democracy

🛠 Way Forward

Action Points

- Create independent court approval for surveillance requests
- Disclosure of tools used and their purposes
- Fully operationalize DPDP Act
- Surveillance only when necessary, least intrusive, and legal
- Support End-to-End Encryption

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UPSC PYQ (P) 2017

In India, it is legally mandatory for which of the following to report on cyber security incidents?

1. Service providers
2. Data centres
3. Body corporate

Select the correct answer using the code given below:

(a) 1 only
(b) 1 and 2 only
(c) 3 only
(d) 1, 2 and 3

UPSC PYQ (P) 2020

In India, under cyber insurance for individuals, which of the following benefits are generally covered, in addition to payment for the loss of funds and other benefits?

1. Cost of restoration of the computer system in case of malware disrupting access to one's computer.
2. Cost of a new computer if some miscreant wilfully damages it, if proved so
3. Cost of hiring a specialized consultant to minimize the loss in case of cyber extortion
4. Cost of defence in the Court of Law if any third party files a suit

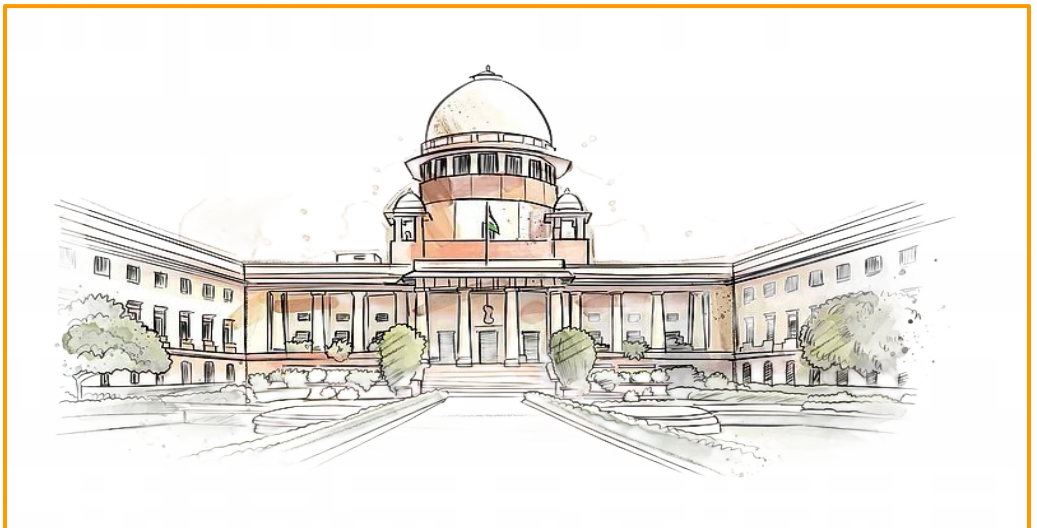
Select the correct answer using the code given below:

(a) 1, 2 and 4 only
(b) 1, 3 and 4 only
(c) 2 and 3 only
(d) 1, 2, 3 and 4

Mains Practice Question:

"A government that spies on its people without rules is a threat to democracy itself." Discuss in context of the recent Pegasus controversy."

(15 Marks, 250 words)



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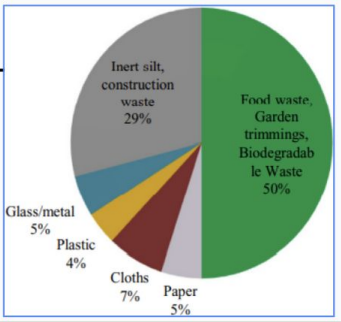
Judicial remedy for waste management

CONTEXT: "Continuing Mandamus" can fix Waste Management woes in India.

The Scale of India's Waste Problem

- **12% of global municipal waste**
- Generates **62 million tonnes/year**
- **9.3 million tonnes** of **plastic waste** annually
- Expected to **rise to 165 million tonnes by 2030**

Only **70% collected, 20% treated, rest dumped!**



Why Current Systems Fail?

A. Mismanagement Crisis

- **Dumpsites** outnumber landfills 10:1
  - **Openly burned** or **dumped**
- **Rural waste** unaccounted for
  - Urban-focus; **ignores 70%**
- Govt claims **0.12 kg/person/day plastic waste**, but studies show ***0.54 kg/person/day***

B. Others

Issue	Problem	Consequence
Faulty Data	No audits/methodology for waste tracking (CPCB relies on unverified municipal reports).	Policies built on underestimated **numbers**.
Local level	Panchayats lack waste tracking; no infrastructure.	**Open burning & groundwater contamination**.
EPR Gaps	Brands don't recycle enough; informal sector handles 90% of waste.	**Plastic chokes rivers, landfills, Himalayas**.

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The Judicial Remedy: "Continuing Mandamus"

5-Step Waste Management Overhaul

Step 1: Fix Data Gaps

- **Tech-Driven Audits:** Use AI/satellites to measure waste (e.g., Himalayan plastic w).
- **Include Informal Sector:** Track waste pickers' recycling

Step 3: Rural Waste Infra

- **Material Recovery Facilities (MRFs)** in villages → Segregate recyclables.
- **Ban Open Burning:** SC=criminalize violations

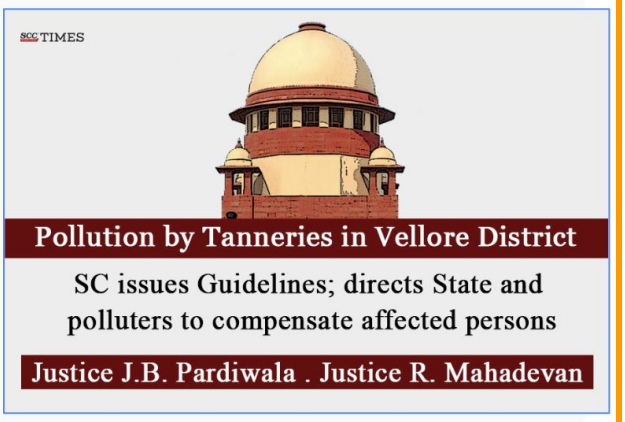
Step 2: Universalize EPR

Brand-Owned Kiosks:

- PIBOs (Producers, Importers, Brand Owners) must set up **waste collection kiosks** in every panchayat/ward.

Penalty: Non-compliance → Fines per "polluter pays".

Term	Meaning
Mandamus	Constt. writ issued by a court to command a public authority to perform its legal duty.
Continuing Mandamus	A form of mandamus where the court **monitors ongoing compliance** through regular hearings, reports, and directions until the issue is resolved.



The Judicial Remedy: "Continuing Mandamus"

5-Step Waste Management Overhaul

Step 4: Judicial Monitoring

- **SC-appointed committees** to audit states' waste systems (like **Swachh Bharat's failed targets**).
- **PILs :** wrt municipalities for inaction

Step 5: Remediation Funds

- **Govt Advances Cleanup Costs → Recovers from Polluters** (Vellore model).
- **Example:** Make Amazon/Flipkart pay for packaging waste.

Challenge	Solution via Continuing Mandamus
Political Apathy	Courts can **override delays** (e.g., SC's coal block allocations cancellation).
Corporate Resistance	Mandatory **EPR compliance orders** with penalties.
Funding Gaps	Polluter pays principle → **Industries bear costs**.

Legal Principle upheld	Meaning & Significance
Polluter Pays Principle	The polluter must **compensate victims** and also bear the cost of **restoring degraded ecology**.
Constitutional Duty	Environmental protection is a **constitutional mandate** *(Articles 21, 48A, 51A(g)).*
Custodianship of Rights	**Fundamental Rights**; must intervene when authorities fail.
Government Pay Principle	Where polluter is unidentified or process delayed, **State must compensate** and later recover from the violator.

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Way Forward

- ✅ **Strict Fines** for non-segregation (Singpr $300)
- ✅ **Daily Waste Audits** via GPS-tracked garbage trucks
- **Decentralised Waste Processing**
  - **Tamil Nadu model**: Micro-Composting (5 tonnes/day wet waste/ ward)
  - **Bengaluru model**: Dry Waste Centers 2 tonnes/day recycling hubs
- **Formalise Informal** Sector (gear/ child labour/ skill)
- Public **Awareness** Drives
- **Private Sector Role** (Indore model/ Blockchain)

Global Lessons for India

- 🌍 **Sweden – 99% waste recycled** (strict laws + public participation).
- 🌏 **Japan – Zero-waste towns** (Kamikatsu recycles 80% trash).
- 🌎 **EU Model - Strict EPR laws** (brands recycle 50%+ plastic)
- 🌍 **Rwanda – Ban on plastic bags** + monthly clean-up days.

Mains Practice Question:

"India's waste crisis is solvable – but needs political will, public participation, and judicial oversight. Comment in context of the 'continuing mandamus'.

(15 Marks, 250 words)

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Deeptech & Startups

SYLLABUS : GS 3: Awareness in the fields of IT, Computers, Robotics
Newspaper : The Hindu **Page Number : 12**

Insufficient support for deep tech start-ups in India: study

The study asked labs to supply data on 62 parameters such as their spend on R&D; around 25% of the participating institutions reported spending between 75% and 100% of their budget on R&D

Jacob Koshy
NEW DELHI

Only about one in four public-funded research and development organisations in India gives incubation support to start-ups and only one in six provides support to 'deep tech' start-ups. Only 15% collaborated with industry overseas and only half opened their facilities to outside researchers and students, say the findings of a study commissioned by the Office of the Principal Scientific Adviser and executed by the Confederation of Indian Industry (CII) and the Centre for Technology, Innovation, and Economic Research.

The study, via a detailed questionnaire, asked labs to rate themselves and supply data on 62 parameters such as their spend on R&D; the number of young scientists, patents filed, and technologies developed; and participation of women scientists and their contribution to "national missions" such as the Deep Ocean Mission and National Quantum Mission.

Labs of the "strategic sector", such as those belonging to defence, space, and atomic energy research – all of which constitute the lion's share of India's overall Research and Development (R&D) spend – were excluded from the study due to the "sensitive nature of their work".

Only half of the public-funded research organisations in India opened their facilities to outside scholars. GETTY IMAGES/ISTOCKPHOTO

The labs studied were those affiliated to the Council of Scientific and Industrial Research, the Department of Science and Technology, the Ministry of Electronics and Information Technology, and so on.

The Union government expenditure on R&D was around ₹55,685 crore in 2020-21, the figure cited in the study and the latest available says. Excluding the expenditure of the strategic departments such as the DRDO (defence), DAE (atomic energy) and DoS (space), the spending by key scientific agencies and other Central government departments was ₹24,587 crore.

Around 25% of the participating institutions reported spending between 75% and 100% of their budget on R&D.

The organisations that reported less than the median share of spending on R&D and S&T (Science and Technology) in the overall budget were largely from ICAR (Agricultural research), CSIR, ICMR (medical research), Ministry of AYUSH (Ayurveda and traditional medicine) and DST (Science and Technology).

Staff strength down

A large number of labs/institutes reported a decrease in the number of permanent staff in 2022-23 compared with the previous year and an increased reliance on contractual staff.

The median share of young researchers increased in 2022-23 to around 58% from 54% in the previous year.

"This is the second time that we have had such an analysis. What we intend is that the data from such a study be closely analysed by institutions so that they can identify areas of improvement," said Dr. Ajay Sood, Principal Scientific Adviser. "Overall, several research institutes seem to have oriented themselves from being centres of scientific inquiry to innovation centres. I see that as a positive development. Academia and product innovation must go hand in hand."

As part of its recommendation, the report advocates that every lab should be "mandated to review their existing mandates".

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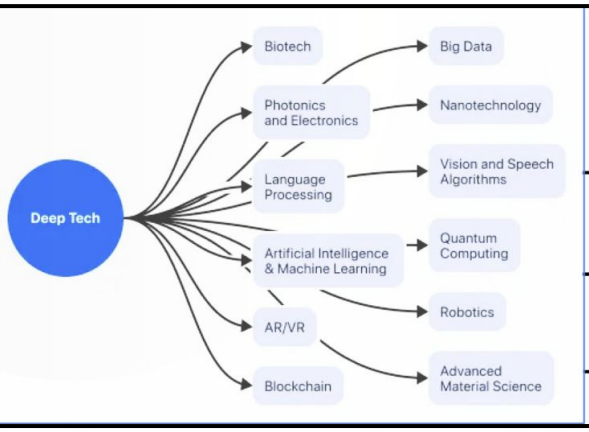

What Are *Deep Tech Start-ups*?

Companies built on disruptive, science-driven innovations

Why are they Important?
- **High-risk, high-impact ventures**
- Technological leadership

Key Findings from the CII-CTIER Study (2025)

of a study commissioned by the Office of the Principal Scientific Adviser and executed by the Confederation of Indian Industry (CII) and the Centre for Technology, Innovation, and Economic Research.

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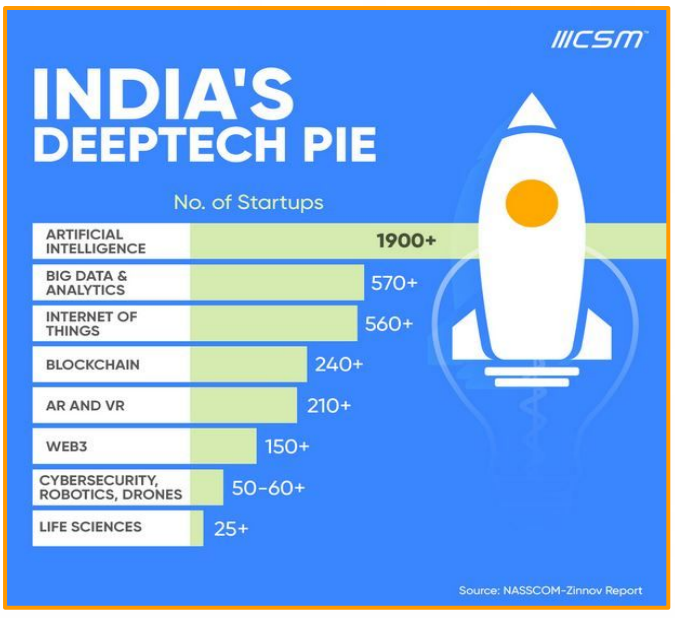
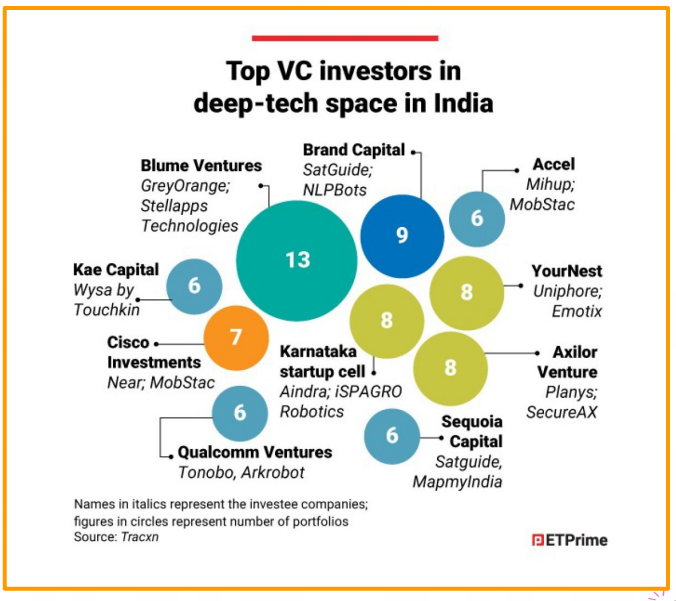
Parameter	Finding
Startup Support	🔴 Only 25% offered any startup incubation 🔴 Only 16% supported deep tech startups
Global Industry Ties	🔴 Just 15% had industry collaboration abroad
Facilities Access	⚠️ Only half opened labs to outside researchers or students
R&D Spend Share	✅ 25% spent 75–100% of their budget on R&D⚠️ Others (especially ICAR, ICMR, AYUSH) spent much less proportionally
Youth in Research	📈 Young researcher share increased to **58%** from 54% last year (but down from 63–65% during 2017–20)

Government Policies

- **Startup India & Atmani Bharat**
- **National Deep Tech Start-up Policy** (drafted 2023)
- **National Research Foundation**
- **National Quantum Mission, Semiconductor Mission, India AI Mission**
- **PLI Schemes**

Country	Deep Tech Support Model	India's Gap
USA (DARPA, NSF)	Govt funds startups via grants, defense tech spin-offs.	India's DRDO/ISRO don't share IP.
Israel (Unit 8200, Weizmann Institute)	Military R&D fuels startups (e.g., Waze, Check Point).	No such ecosystem in India.
Germany (Fraunhofer Institutes)	Public-private labs commercialize research.	CSIR lacks industry partnerships.





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Deeptech & Startups

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🏛️ Solutions to Boost Deep Tech Startups

*Open Up **Strategic Labs***	✅ **DRDO, ISRO, BARC** should **spin off startups** (Israel's Unit 8200). ✅ **Declassify non-sensitive tech** (e.g., drones, AI for agriculture).
*Increase **Funding** for Applied Research*	✅ Double non-defense R&D budget (₹24,587 Cr to ₹50,000 Cr). ✅ Create a **₹10,000 Cr "Deep Tech Fund"** for startups.
*Mandate **Industry Collaboration***	✅ Force CSIR/ICMR labs to **partner with startups** (like Fraunhofer). ✅ Tax breaks for MNCs funding Indian deep tech.
*Fix **Human Capital** Issues*	✅ Hire **more permanent scientists** ✅ Startup visas for foreign deep tech talent.
*Align with **Viksit Bharat Goals***	✅ Labs must prioritize: • Semiconductors • Quantum computing • AI/robotics • Clean energy tech

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2025 Special 301 Report

SYLLABUS : GS 3: Issues relating to intellectual property rights
Newspaper : The Indian Express **Page Number : 14**

US puts India on 'priority watch list' for weak intellectual property rights protection

RAVI DUTTA MISHRA
NEW DELHI, APRIL 29

PLACING INDIA, China and six other countries on its 'priority watch list' for weak intellectual property (IP) protection, the US on Tuesday said that New Delhi remains one of the world's most challenging major economies in terms of the protection and enforcement of IP rights, according to the United States Trade Representative's (USTR) Special 301 Report released on Tuesday.

The USTR report stated that over the past year, India has remained inconsistent in its progress on IP protection and enforcement, even as it has worked to strengthen its IP regime, including by raising public awareness about the importance of IP. "There continues to be a lack of progress on many long-standing IP concerns raised in prior Special 301 Reports. India remains one of the world's most challenging major economies with respect to protection and enforcement of IP," the report said.

Experts have flagged that foreign companies cornering a large share of patents in the Indian market could increase the country's technology dependency and imports from the US. New Delhi's R&D spending remains lower than that of leading economies, which are also the biggest sources of patent applications in India.

'LACK OF PROGRESS ON MANY CONCERNS'

The USTR report stated: "There continues to be a lack of progress on many long-standing IP concerns raised in prior Special 301 Reports. India remains one of the world's most challenging major economies with respect to protection and enforcement of IP"

While neighbouring China spends 2.43 per cent of its GDP on R&D, the figure stands at 4.93 per cent for South Korea, 1.21 per cent for Thailand, 2.21 per cent for the European Union, and 3.46 per cent for the United States.

Patents to foreigners up

The continued US push to liberalise the Indian patent regime comes even as patent grants to foreigners have surged past those to domestic applicants. Patents granted to non-resident individuals and entities stood at 74.46 per cent in 2022 — among the highest shares in any major economy globally. World Intellectual Property Organization (WIPO) data show that the comparable figure for China was just 12.87 per cent. While foreign calls for stronger patent protection are gaining momentum, India's spending on research and development as a percentage of GDP has stagnated over the years. R&D spending is now below the 0.83 per cent of GDP recorded in 2008, the highest in the past two decades. The comparable figure slipped to 0.65 per cent in 2022, according to World Bank data — much lower than the global average of 2.62 per cent.

Weak trade secret protection

Companies also continue to face uncertainty due to insufficient legal means to protect trade secrets in India, the USTR said, adding that "currently no civil or criminal laws in India specifically address the protection of trade secrets". "Criminal penalties are not expressly available for trade secret misappropriation in India, and civil remedies reportedly are difficult to obtain and do not have a deterrent-level effect," the report said.

"One particular issue highlighted by stakeholders is the requirement for companies to disclose their source code for telecom equipment undergoing required certification and security testing at designated Indian facilities. The United States encourages India to continue working toward providing adequate and effective protection of trade secrets," it added.

FULL REPORT ON
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Priority Watch List	Watch List
India	Brazil
China	Vietnam
Russia	Pakistan
Mexico	Turkey
Chile	Canada
Argentina	Egypt
Indonesia	Peru
Venezuela	Trinidad & Tobago

🧠 It categorizes countries into:

- **Priority Watch List**
- **Watch List**

Significance of the Report	*Implication*
Bilateral Trade Tool	Used by U.S. to **pressure trade partners** into reforming IP systems
Trade Negotiations Leverage	Can justify **tariffs**, sanctions, or dispute settlement under WTO
Diplomatic Sensitivity	Being listed can damage a country's **investor reputation** and **trade relationships**
IP Ecosystem	**Credibility** of a country's **innovation protection system**

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2025 Special 301 Report

SYLLABUS : GS 3: Issues relating to intellectual property rights
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Key Issues with *India's IP Regime*

Category	Specific Concerns	Impact
Patent Protection	- Long delays in patent approvals. - Ambiguous interpretation of **Section 3(d)** (blocks "evergreening"). - **Pharmaceutical test data**.	Discourages **innovation**; U.S. pharma companies face **revenue losses**.
Trademark Enforcement	- Rampant **counterfeiting** - Delays in trademark opposition cases.	Hurts **brand integrity**; legal uncertainty for businesses.
Copyright & Piracy	- **Online piracy** (movies, software, music). - Illegal streaming platforms.	**Losses** for U.S. **media/tech firms** (e.g., Disney, Microsoft).
Customs & Trade Barriers	- High **tariffs** on IP-intensive goods - Customs seizures.	Increases **costs for U.S. exporters**; trade **imbalances**.
Enforcement Weaknesses	- Poor coordination among agencies. - Lack of specialized IP courts/judges.	**Low conviction rates** for IP theft; slow **dispute resolution**.
Data Exclusivity	- Inadequate protection for **clinical trial data** - Favours generic drug manufacturers over innovators.	**Risks for R&D** investments; U.S. firms reluctant to share data.

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Other details of *India's IP Regime*

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Navy's 26 new Rafales

SYLLABUS : G.S.3 : Various Security forces and agencies and their mandate
Newspaper : Indian Express **Page Number :** Explained

Navy's 26 new Rafales

Why is the induction of the Rafale M important in the context of the Indian Navy? Why does India need aircraft carriers, and advanced fighter jets for these great battleships?

EXPERT EXPLAINS

MUKUL ASTHANA

INDIA AND France on Monday signed a $7.4 billion (approximately Rs 63,000 crore) government-to-government contract for 26 Rafale Marine (Rafale M) fighter aircraft for the Indian Navy. Thirty-six Rafale aircraft were earlier inducted into the Indian Air Force from 2021 onward.

Why is the induction of the Rafale M important in the context of the Indian Navy?

First, what is meant by naval aviation?

Naval aviation is the use of military air power by navies, involving aircraft that operate from warships — such as aircraft carriers and other aircraft — or helicopter-carrying surface combatants, or land bases to support naval operations.

It includes specialised naval aircraft designed to meet the unique demands of carrier operations and small decks, such as short takeoffs and arrested landings, and roles such as air-to-air combat, surface and submarine attack, maritime reconnaissance, search and rescue, and logistical support.

The key roles of naval aviation include:

FLEET AIR DEFENCE: providing air cover for naval forces beyond the reach of land-based aircraft;

STRATEGIC POWER PROJECTION: allowing deployment of air power without needing land bases;

ANTI-SURFACE WARFARE: attacking enemy ships with air-launched missiles;

SUPPORTING AMPHIBIOUS WARFARE: aiding marine landings and operations inland; and

MINE COUNTERMEASURES: using aircraft to detect and clear enemy mines.

Naval aviation is crucial for maintaining control of the seas, supporting naval and ground forces, and projecting military power along distant shores. It includes fixed-wing carrier borne squadrons, land-based Maritime Patrol Aircraft, Helicopters and Remotely Piloted Aircraft operated from warships and ashore.

And what exactly is an aircraft carrier?

An aircraft carrier is a warship that serves as a seagoing airbase, equipped with a full-length flight deck and hangar facilities for supporting, arming, deploying, and recovering shipborne aircraft.

It allows a naval force to project seaborne air power far from its homeland without having to rely on airfields ashore. Aircraft carriers as part of the Carrier Battle Groups are often the centerpiece of modern naval warfare, with significant strategic and diplomatic influence in deterrence, command of the sea, and air supremacy.

Aircraft carriers are also adaptable and survivable airfields that are ready to control the seas, conduct strikes, and manoeuvre across the electromagnetic spectrum and cyberspace.

About 50 carriers, operated by the navies of several countries, are currently active around the world. The United States Navy leads with 11 large nuclear powered carriers followed by Brazil, China, France, India, Italy, Russia, Spain, Thailand and the United Kingdom.

What is the history of carrier aviation in India?

While Indian naval aviation will celebrate its 72nd anniversary on May 11, 2025, India's carrier aviation began with the commissioning of the *INS Vikrant* in 1961.

Since the 1960s, India has operated four carriers — the *INS Vikrant* (1961-1997), *INS Viraat* (1987-2017), *INS Vikramaditya* (since 2013), and the indigenously built *INS Vikrant*, which was commissioned in 2022.

Through this unbroken period of 64 years, India has operated all major types of aircraft launch and recovery systems and continues to expand its carrier fleet, with future plans for additional indigenous construction.

But why does India need aircraft carriers?

India requires aircraft carriers for several strategic, military, and geopolitical reasons.

STRATEGIC DETERRENCE AND POWER PROJECTION: Aircraft carriers enable India to assert influence and maintain favourable balance of power in the Indian Ocean, a region critical for trade, energy flow and security for India and the world.

PROTECTION OF MARITIME INTERESTS: More than 90% of India's trade by volume moves by sea. Carriers help secure Sea Lines of Communication (SLOCs), protect island territories, and deter potential threats.

BLUE WATER NAVY CAPABILITY: Carriers allow the Indian Navy to operate far from home shores, reinforcing its status as a blue water force capable of extended operations and rapid responses to crises.

CONTINUOUS OPERATIONAL READINESS: Having multiple carriers ensures that at least one is always operational on each coast, even as others are in maintenance or refit.

NON-MILITARY ROLES: Carriers also play a vital role in Humanitarian & Disaster Relief (HADR) operations that project India's soft power and the ability to respond to regional emergencies and calamities, which are not uncommon in the Indian Ocean Region.

How will the Rafale Ms help the Navy?

Over the years, India has operated a wide variety of carrier-based fighters — from Sea Hawks, Alizes, Sea Harriers and, at present, the very capable fourth generation MiG29Ks.

The country is now developing the fifth generation Twin Engine Deck Based Fighter (TEDBF), that is likely to be operationalised in the middle of the next decade.

The 26 Rafale M jets, a four-and-a-half-generation battle-proven combat aircraft, will augment the existing MiG29K fleet.

A great advantage that accrues with the induction of the 26 Rafale Ms for the Indian Navy is the commonality with the IAF Rafales. This provides the desirable scope for interoperability and joint training, as well as for maintenance and safe practices of these assets and their aircrew between the two services.

The induction of this very capable aircraft in the coming years is a shot in the arm for the Indian armed forces, and shall ensure continued and enhanced combat capabilities across the full spectrum of India's military might.

Rear Admiral Mukul Asthana (Retd) is a naval aviator who retired from the Indian Navy in October 2020 as Assistant Chief of Naval Staff (Air)

Versatile, omnirole fighting machines

Rafale-Marine (Rafale-M), designed and produced by Dassault Aviation, is a French fighter aircraft modified to operate out of an aircraft carrier. Rafale-M entered service with the French Navy in 2004.

OMNIROLE CAPABILITIES: The Rafale can carry out a gamut of combat aviation missions — air superiority and air defence, close air support, in-depth strikes, reconnaissance, anti-ship strikes and nuclear deterrence — in a single sortie if required.

REINFORCED UNDERCARRIAGE: All Rafale variants share a common airframe and a common mission system, with the differences between naval and land versions limited mainly to the undercarriage and the arresting hook. This high degree of commonality allows for interoperability with Rafales already in service with the Indian Air Force.

MULTI-SENSOR DATA FUSION: Rafales have the unique capability to fuse and process data provided by all onboard and offboard sensors. At the centre of these enhanced capabilities lies a new Modular Data Processing Unit (MDPU). The system's modularity also makes Rafales upgradeable over their service life, to meet evolving tactics and improvements in computer technology.

Source: Dassault Aviation

Since the 1960s, India has operated four carriers — the *INS Vikrant* (1961-1997), *INS Viraat* (1987-2017), *INS Vikramaditya* (since 2013), and the indigenously built *INS Vikrant*, which was commissioned in 2022.

India operates ***two aircraft carriers***

1. **INS Vikramaditya**
   (Russian-origin, since 2013)
2. **INS Vikrant**
   (Indigenous, commissioned in 2022)

INS Vishal *– Planned 65,000-ton CATOBAR carrier (likely nuclear-powered)*

Naval aviation refers to **aircraft operating from warships (carriers, destroyers, etc.)** to support naval missions.

Role	Function
Fleet Air Defence	Protects warships from enemy aircraft/missiles.
Power *Projection*	Strikes targets deep inside enemy territory without needing land bases.
Anti-Surface *Warfare*	Attacks enemy ships using **air-launched missiles (like BrahMos-NG)**.
Submarine *Hunting*	Detects and neutralizes enemy submarines.
Search & Rescue	Saves pilots/sailors in distress.

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Navy's 26 new Rafales

SYLLABUS : G.S.3 : Various Security forces and agencies and their mandate
Newspaper : Indian Express **Page Number :** Explained

Comparison with Current Jets	**Rafale M**	**MiG-29K**
Range	3,700 km	2,000 km
Payload	9.5 tonnes	5.5 tonnes
Survivability	SPECTRA EW suite	Limited EW capabilities
Weapons	Meteor, Scalp, Exocet	R-77, Kh-35

- **Rafale M is a *4.5-gen jet*, while MiG-29K is *4th-gen***
- **TEDBF** (Twin Engine Deck-Based Fighter) – Indigenous **5th-gen jet** (to replace Rafale M by 2035)

How Rafale M Boosts India's Naval Power

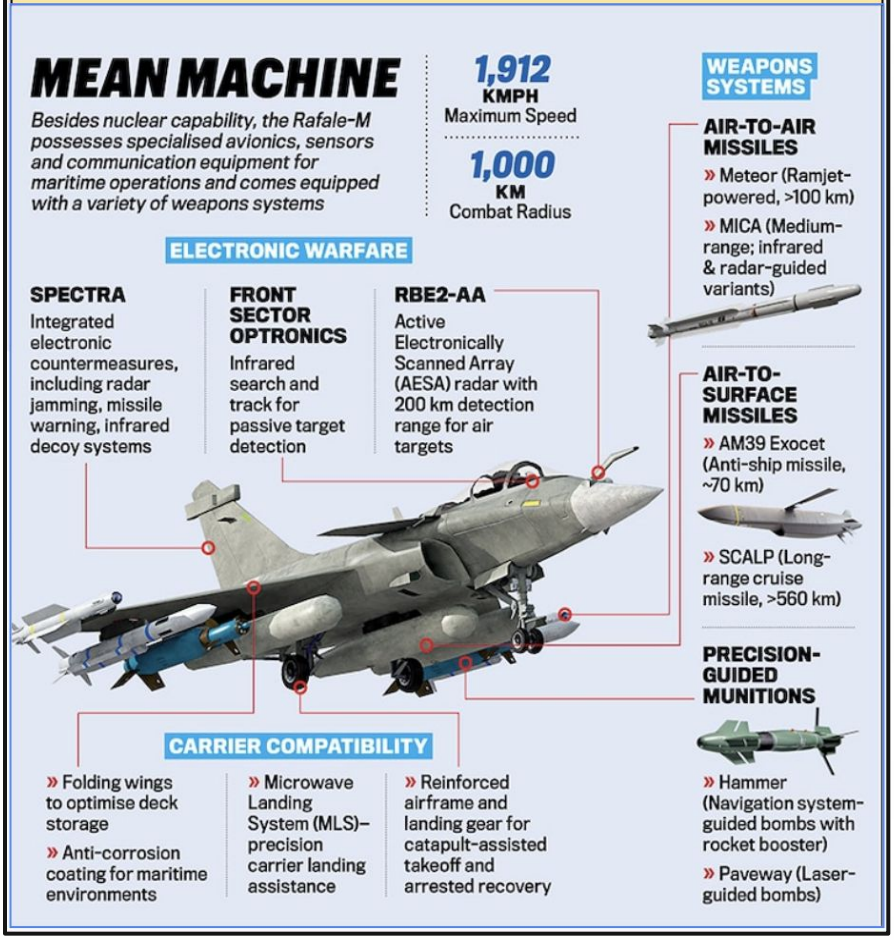
✅**Replaces Aging MiG-29Ks** – Which face **engine reliability issues**.

✅**Outclasses China's J-15 (Carrier-Based Jet)** – Rafale M.

✅**Interoperability with IAF**

✅**Prepares for TEDBF**

The Rafale M: A Beast of a Fighter Jet



But why does India need aircraft carriers?

India requires aircraft carriers for several strategic, military, and geopolitical reasons.

STRATEGIC DETERRENCE AND POWER PROJECTION: Aircraft carriers enable India to assert influence and maintain favourable balance of power in the Indian Ocean, a region critical for trade, energy flow and security for India and the world.

PROTECTION OF MARITIME INTERESTS: More than 90% of India's trade by volume moves by sea. Carriers help secure Sea Lines of Communication (SLOCs), protect island territories, and deter potential threats.

BLUE WATER NAVY CAPABILITY: Carriers allow the Indian Navy to operate far from home shores, reinforcing its status as a blue water force capable of extended operations and rapid responses to crises.

CONTINUOUS OPERATIONAL READINESS: Having multiple carriers ensures that at least one is always operational on each coast, even as others are in maintenance or refit.

NON-MILITARY ROLES: Carriers also play a vital role in Humanitarian & Disaster Relief (HADR) operations that project India's soft power and the ability to respond to regional emergencies and calamities, which are

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JET FIGHTER GENERATIONS

1st **Gen jet fighters** (1940s-1950s) used turbojets for propulsion instead of earlier piston-driven aircraft (Messerschmitt-Me262, **Mystere-IV**, MiG-15 etc)

2nd Gen fighters (1950s-1960s) integrated new technologies, swept or delta wings & guided missiles for BVR (beyond visual range) combat (**MiG-21**, Sukhoi-7, F-104 Starfighter etc)

3rd Gen fighters (1960s-1970s) inducted improved radars, missiles & avionics (Mirage-III, MiG-25, **F-4 Phantom-II** etc)

4th Gen fighters (1970s-1990s) incorporated fly-by-wire controls & multi-role capabilities (**Mirage-2000**, MiG-29, Sukhoi-27, Tornado, F-16 Fighting Falcon etc)

4.5 Gen fighters (1990s-onwards) use more advanced avionics & electronics, with some stealth. (**Sukhoi-30MKI**, Gripen, Eurofighter Typhoon, F-16F Desert Falcon, F/A-18 Super Hornet etc)

5th Gen fighters are **multi-role** or swing-role but also incorporate advanced **stealth** technology, composite materials, **supercruise** (achieve **supersonic cruise** speeds without use of afterburners), **thrust-vectoring** & **multi-sensor** integrated avionics

Only **fully-operational 5th-gen fighter** at present is the **American F/A-22 'Raptor'**, **developed** for **$28 billion**, with each **fighter** costing **$350-400 million extra**. Two FGFA in **pipeline** are American **F-35 'Lightning-II'** Joint Strike Fighter & Russian **Sukhoi T-50** or **PAK-FA**

UPSC PYQ (P) 2024

Consider the following aircraft:

1. Rafael
2. MiG-29
3. Tejas MK-I

How many of the above are considered fifth generation fighter aircraft?

a) Only one
b) Only two
c) All three
d) None

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PM Fasal Bima Yojana

SYLLABUS : GS 3: Direct and indirect farm subsidies
Newspaper : Indian Express **Page Number : 10**

Maharashtra scraps ₹1 crop insurance; goes back to Central Govt scheme

ALOK DESHPANDE
MUMBAI, APRIL 29

FACING ALLEGATIONS of irregularities, bogus claims and financial burden, the Maharashtra government on Tuesday scrapped the ₹1 crop insurance scheme launched two years ago. It will now be replaced by the old scheme: PM Crop Insurance Scheme.

As per the new decision, farmers will now pay premiums worth 2 per cent for Kharif, 1.5 per cent for Rabi and 5 per cent for cash crops of the sum assured.

The Re 1 crop insurance scheme was launched in 2023 by the state government, under which farmers were to pay only Re 1 as premium while the rest was borne by the government. This led to an increase in the number of applicants compared to previous years and over 5.82 lakh bogus claims in 2024-25.

Last year, the government (both state and Centre share) paid ₹7,539 crore as premium for Kharif, and ₹1,684 crore for Rabi season.

Pradhan Mantri Fasal Bima Yojana

18th February 2016 by the **Ministry of Agriculture**

Provide crop insurance to farmers against losses due to:

- **Natural calamities** (droughts, floods, cyclones, hailstorms).
- **Pests** & **diseases**.
- **Post-harvest losses** (hailstorms, landslides).

Key Objectives of PMFBY

- ✅ **Financial Protection**
- ✅ **Income Stability**
- ✅ **Promote Modern Farming**
- ✅ **Crop Diversification**
- ✅ **Credit Access**

Category	Coverage	Premium Contribution
Loanee Farmers	**Compulsory**	2% (Kharif), 1.5% (Rabi), 5% (Horticulture)
Non-Loanee Farmers	**Voluntary**	Same as above
SC/ST/Women Farmers	**Priority Coverage**	Extra govt. subsidy
NE, J&K, Himachal Farmers	**Fully Subsidized**	0% (Govt. pays full premium)

Context of the news

FACING ALLEGATIONS of irregularities, bogus claims and financial burden, the Maharashtra government on Tuesday scrapped the ₹1 crop insurance scheme launched two years ago. It will now be replaced by the old scheme: PM Crop Insurance Scheme.

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Success Stories

📌 **Maharashtra (2023 Drought):** Over **12 lakh farmers** received ₹2,500 crore in claims.
📌 **Andhra Pradesh (Cyclone Michaung): 98% claims settled within 45 days**.
📌 **Punjab (Pest Attack): Drone-based assessment**

Benefits of PMFBY

A. Affordable Premiums

B. Wide Coverage

- **Pre-Harvest Risks**
- **Post-Harvest Risks**
- **Exclusions:** War, nuclear damage, intentional crop destruction.

C. Fast & Transparent Claims

- **National Crop Insurance Portal** for tracking.
- **Mobile apps** for real-time damage reporting.

Conditions:

✔ Must have **land ownership/lease documents**.
✔ **No double claims** (cannot claim from other schemes).

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PM Fasal Bima Yojana

SYLLABUS : GS 3: Direct and indirect farm subsidies
Newspaper : Indian Express **Page Number : 10**

UPSC PYQ (P) 2016

With reference to 'Pradhan Mantri Fasal Bima Yojana', consider the following statements:

1. Under this scheme, farmers will have to pay a uniform premium of two percent for any crop they cultivate in any season of the year.
2. This scheme covers post-harvest losses arising out of cyclones and unseasonal rains.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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NSO's survey on Private Investments

SYLLABUS : GS 3: Indian Economy and issues relating to mobilization of resources
Newspaper : Indian Express **Page Number : 14**

📊 Insights from NSO's first Forward-Looking Survey & Finance Ministry's March 2025 Economic Review

📌 **What Is Capital Expenditure** (Capex)?

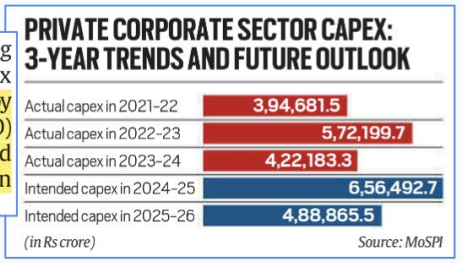
Long-term investments by businesses in:

- **Physical assets**: factories, plants, infrastructure, machinery
- **Technology upgrades** or **capacity expansion**

Financial Year	Capex Intent (₹ lakh crore)	Growth
2021–22	~3.5 (approx, not specified)	🔽 Lower
2022–23	Above FY26 level (~5+)	🔼 Higher
2023–24	< 4.89	🔽 Lower
2024–25	**6.56**	🔼 **+55.5%** YoY
2025–26	**4.89**	🔽 **–25.5%** YoY

🔑 **Key Takeaways**
- 🔹 **66% cumulative growth** from FY22 to FY25
- 🔹 FY25 was a **peak year**
- 🔹 FY26 capex still **above pre-2023 levels**, but significantly below FY25

inaugural 'Forward-Looking Survey on Private Sector Capex Investment Intentions' released by the National Statistics Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI) on Tuesday showed.



⚙️ Key Drivers Behind Capex Trends

Positive Drivers (FY24–25 boom)	Reasons for FY25–26 dip
✅ Easing inflation	🔻 High borrowing costs continue
✅ Robust public capex crowd-in	🔻 Global uncertainty (wars, Fed rate)
✅ PLI schemes in key sectors	🔻 Weak domestic demand in some sectors
✅ Tax & infrastructure reforms	🔻 Base effect from large FY25 investments
✅ Corporate deleveraging	🔻 Wait-and-watch due to upcoming elections

Top 5 Sectors Driving FY25 Capex

1. **Renewable Energy** (Solar, Wind) – ₹1.2L Cr
2. **Semiconductors & Electronics** – ₹1.0L Cr (PLI-driven)
3. **Steel & Cement** – ₹0.9L Cr (Infra boom)
4. **Automobiles (EVs)** – ₹0.7L Cr
5. **Chemicals & Pharma** – ₹0.6L Cr

Sectors Pulling Back in FY26

- **Real Estate** (High loan rates → Fewer new projects)
- **Consumer Durables** (Weak rural demand)
- **Textiles** (Export slowdown)

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Daily Quiz

Q1. Which of the following statements best describes the term Pegasus recently seen in the news?

a) A military drone system developed by DRDO.
b) A spyware developed to monitor and extract data from targeted mobile devices secretly.
c) A weather-monitoring satellite launched by ISRO.
d) A global cybersecurity initiative under the United Nations.

Answer: b

Q2. Which of the following statements best explains the objective of issuing a writ of Mandamus?

a) To direct the release of a person detained unlawfully.
b) To direct a person to vacate an office assumed wrongfully.
c) To direct a public authority to do its duty.
d) To prohibit a lower court from proceeding on a case.

Answer: c

Q3.The "*Priority Watch List*", released by the United States Trade Representative, primarily highlights:

a) Countries involved in violations of international labour standards.
b) Countries that do not provide adequate protection or enforcement of Intellectual Property Rights.
c) Countries with high levels of trade imbalances with the United States.
d) Nations involved in unfair trade subsidies and dumping practices.

Answer: b

Q4. Consider the following statements regarding Pradhan Mantri Fasal Bima Yojana:

1. It aims to protect farmers financially against crop loss due to natural disasters, pests, and diseases.
2. The maximum premium payable by the farmer will be 5% for the Kharif food and oilseed crops.
3. For the farmers in North-Eastern States, Jammu, Kashmir, and Himachal Pradesh, the government also pays the entire premium.

Which of the statements given above is/are correct?

a) Only One
b) Only Two
c) All Three
d) None

Answer: b

Q5. Which of the following aircraft carriers is/are currently operational in the Indian Navy?

1. INS Vikramaditya
2. INS Viraat
3. INS Vikrant

Select the correct answer using the codes below.

a) 1 and 2 only
b) 1 Only
c) 2 and 3 only
d) 1 and 3 only

Answer: d

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