

**PRELIMS EDGE 2025****23-11-2025****GROUP OF 20**

Context; At the 2025 G20 Leaders' Summit in Johannesburg, Prime Minister Narendra Modi proposed a six-point agenda focused on inclusive and sustainable global development, especially for the Global South.

**About The G20**

- **About:** The G20 was founded in **1999** after the **Asian financial crisis** as a forum for the **Finance Ministers and Central Bank Governors** to discuss **global economic and financial issues**.
- **Evolution:** The G20 was **elevated** to the **leaders' level** after the **2007-08 financial crisis** and declared the **top forum** for global economic cooperation in **2009**.
 - While it began with a focus on macroeconomics, its agenda now covers **trade, health, climate change, and more**.
- **Membership:** Its membership includes **19 national economies** and the **European Union (EU)** and **African Union (AU)**. India became a member of the **G20** in the year **1999**, when the group was **established**.
 - **Other countries** can be invited as "**special guests**" on an **ad hoc** basis.
- **Structure and Governance:** The **G20** operates under a **rotating presidency** with annual summits and functions **without a permanent secretariat**.
 - The **troika system** (current, past, and incoming presidents) manages the **G20** work, with the **2025 troika** consisting of **South Africa** (current), **Brazil** (past), and the **US** (incoming 2026 president).
- **Global Influence:** Represents **67%** of the global population, **85%** of world GDP, and **75%** of global trade.
 - International organizations like the **International Monetary Fund (IMF)**, **World Bank**, **Organisation for Economic Co-operation and Development (OECD)**, and **World Trade Organization (WTO)**, along with representatives from some **UN entities**, participate in **G20 meetings**.

Prime Minister Modi's six-point agenda, proposed during the 2025 G20 Leaders' Summit in Johannesburg.

- **Drug-Terror Nexus Countering:** A global initiative to tackle drug trafficking (including fentanyl) and stop the flow of illicit funds used to finance terrorism.
- **Global Healthcare Response Team:** Creation of a specialized, deployable team of G20 medical professionals for rapid response to worldwide health emergencies and natural disasters.
- **Africa-Skills Multiplier:** A commitment to train one million certified trainers across Africa within ten years, aiming to boost local employment and economic growth.
- **A Traditional Knowledge Repository:** Establishment of a G20 platform to archive and share traditional knowledge systems and sustainable living practices from around the world.
- **An Open Satellite Data Partnership:** Encouraging G20 space agencies to share crucial satellite data more freely with developing nations for use in agriculture, disaster management, and fisheries.
- **Critical Minerals Circularity:** An initiative focused on recycling, urban mining, and second-life battery projects to secure critical mineral supply chains and support clean development pathways.

Source; At G-20 summit, Modi proposes new initiatives on health, skills-The Hindu

TERMS IN NEWS

Polymetallic Nodules

- Polymetallic nodules, also called **manganese nodules**, are rock concretions formed of

concentric layers of iron and manganese hydroxides around a core.

- Deep-ocean polymetallic nodules form on or just below the vast, sediment-covered, abyssal plains of the global ocean.
- **Abundance:** They can occur at any depth, but the highest concentrations have been found between 4,000 and 6,000m.
- **Size:** Nodules vary in size from tiny particles visible only under a microscope to large pellets more than 20 centimetres across. However, most nodules are between 5 and 10 cm in diameter, about the size of potatoes.
- **Significance:** These nodules primarily consist of precipitated **iron oxyhydroxides and manganese oxides, onto which metals such as nickel, cobalt, copper, titanium and rare earth elements sorb.**



Pharmacogenomics

- It is the **study of how an individual's genetic inheritance affects the body's response to drugs.**
- **Origin of the Word:** The term comes from the words pharmacology and genomics and is thus the intersection of pharmaceuticals and genetics.

- It is part of the growing medical areas of genomic medicine and precision medicine (also called personalized medicine).
- This is a treatment that's personalized based on your genes, environment and lifestyle.

Currently used in

- **Oncology:** Tailoring cancer therapies based on tumour genetics and patient DNA.
- **Cardiology:** Adjusting blood thinner dosages based on genetic variants.
- **Psychiatry:** Selecting the right antidepressant with minimal side effects.
- **Infectious Diseases:** Predicting patient response to antiviral treatments.



Importance of Pharmacogenomics

- **Improving safety:** It improves drug safety, enhances therapeutic outcomes, and reduces healthcare costs associated with adverse drug reactions.
- **Targeted drug development:** Some conditions are caused by specific changes in a gene. Pharmacogenomics can help researchers discover new medications that directly target the gene change.

Interstellar Objects

- Interstellar objects are **celestial bodies that originate outside the solar system, and travel through it.**
- These objects are **not gravitationally bound to a star.**
- They can come from other solar systems and be thrown into interstellar space (the area between the stars) due to collisions or be slingshotted by a planet's or star's gravity.
- **1I/'Oumuamua(2017), 2I/Borisov (2019) and Comet 3I/Atlas** are the recently known interstellar objects.



Characteristics of Interstellar Objects

- **Origin:** They originate from outside our solar system, often from other star systems or the interstellar medium.
- **Hyperbolic Orbit:** They basically move in an open-ended hyperbolic orbit, where there is a perihelion point but no aphelion.
- **Speed:** These objects move at such great speeds that the Sun's gravitational pull is not able to slow them down enough during their outbound leg.

Significance of Interstellar Objects

- **Insights into other star systems:** Interstellar objects can provide clues about the formation and evolution of other star systems.
- **Understanding planetary formation:** They can help us understand how planets form and evolve in different environments

Microplastics



- Microplastics are small pieces of plastics, usually **smaller than 5 mm**.
- They are present in a variety of products, from cosmetics to synthetic clothing to plastic bags and bottles. Many of these products readily enter the environment as wastes.
- Microplastics consist of carbon and hydrogen atoms bound together in polymer chains.
- Other chemicals, such as **phthalates, polybrominated diphenyl ethers (PBDEs), and tetrabromobisphenol A (TBBPA)**, are typically also present in microplastics, and many of these chemical additives leach out of the plastics after entering the environment.
- They are **persistent, very mobile, and hard to remove from nature**.
- There are two categories of microplastics: **primary and secondary**.

- Primary microplastics are tiny particles designed for commercial use, such as cosmetics, as well as microfibers shed from clothing and other textiles, such as fishing nets.
- They enter the environment directly through any of various channels—for example, product use, unintentional loss from spills during manufacturing or transport, or abrasion during washing.
- Secondary microplastics are particles that result from the breakdown of larger plastic items, such as water bottles.
- This breakdown is caused by exposure to environmental factors, mainly the sun's radiation and ocean waves.

Impacts:

- Once in the environment, microplastics do not biodegrade and tend to accumulate and persist.
- They can be ingested by marine organisms, leading to potential harm to aquatic life and bioaccumulation along the food chain.
- They can also carry toxic chemicals and pollutants, posing additional risks to organisms and ecosystems.

PRACTICE QUESTIONS

Q1; Consider the following statements regarding the G20 Grouping

1. The G20 was founded in 1999 after the Asian financial crisis as a forum for the Finance Ministers and Central Bank Governors to discuss global economic and financial issues.
2. The G20 operates under a rotating presidency with annual summits and

functions without a permanent secretariat.

3. India became a member of the G20 in the year 1999, when the group was established.

How many of the above statements are incorrect

- a) Only One
- b) Only Two
- c) All of the Above
- d) None of the Above

Q2; Consider the following statements regarding Polymetallic Nodules

1. Polymetallic nodules, also called manganese nodules, are rock concretions formed of concentric layers of iron and manganese hydroxides around a core.
2. They form on or just below the vast, sediment-covered, abyssal plains of the global ocean.
3. These nodules primarily consist of precipitated iron oxyhydroxides and manganese oxides, onto which metals such as nickel, cobalt, copper, titanium and rare earth elements sorb.

How many of the above statements are incorrect

- a) Only One
- b) Only Two
- c) All of the Above
- d) None of the Above

Q3; The terms 'Oumuamua, 2I/Borisov, and Comet 3I/Atlas are related to which of the following

- a) Interstellar Objects
- b) Stars
- c) Black Holes
- d) Planets

Q4; Consider the following statements regarding Pharmacogenomics

1. It is the study of how an individual's genetic inheritance affects the body's response to drugs.
2. It is part of the growing medical areas of genomic medicine and precision medicine
3. This is a treatment that's personalized based on your genes, environment and lifestyle.

How many of the above statements are incorrect

- a) Only One
- b) Only Two
- c) All of the Above
- d) None of the Above

Q5; Consider the following statements regarding Micro Plastics

1. Microplastics are small pieces of plastics, usually smaller than 5 mm.
2. Primary microplastics are particles that result from the breakdown of larger plastic items, such as water bottles.
3. Secondary microplastics are tiny particles designed for commercial use, such as cosmetics, as well as microfibers shed from clothing and other textiles, such as fishing nets.

How many of the above statements are correct

- a) Only One
- b) Only Two
- c) All of the Above
- d) None of the Above

Answers

1. D
2. D
3. A
4. D
5. A