VYOM MITRA

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Context: ISRO will send **'Vyommitra', a 'lady robot'** in the unmanned Gaganyaan spacecraft.

- Ahead of the launch of India's maiden human spaceflight venture 'Gaganyaan' in December 2021, ISRO will undertake two unmanned missions in December 2020 and June 2021 and 'Vyommitra' will fly in them.
- Vyommitra, the prototype of the half-humanoid
- Vyom Mitra can recognize faces through artificial intelligence and is trained to handle critical functions, initially alone in the first two humanoid flights, and then as an associate of the crew member. The human doppelganger is engineered with various sensors to measure parameters like heat noise, gravitational de-acceleration, etc. to make space flights more suitable and safer for humans.
- It can monitor through module parameters, alert the crew, perform life support operation and also be a companion and converse with the astronauts, recognise them and can also respond to their queries

Humanoids

- Robot with a human-like appearance that can interact, and behave just like humans in different environments.

Gaganyaan

- Gaganyaan is an Indian crewed orbital spacecraft that is intended to send 3 astronauts to space for a minimum of seven days by 2022, as part of the Indian Human Spaceflight Programme.
- It will be for the first time that India will launch its manned mission to space, making the country fourth in line to have sent a human to space.

- The human spaceflight will take 16 minutes to reach the orbit where it will stay for five to seven days.
- The spacecraft will be placed in a low earth orbit of 300-400 km.
- The spacecraft, which is being developed by the Indian Space Research Organisation (Isro), consists of a service module and a crew module, collectively known as the Orbital Module.
- Isro’s Geosynchronous Satellite Launch Vehicle GSLV Mk III, the three-stage heavy-lift launch vehicle, will be used to launch Gaganyaan as it has the necessary payload capability.
- GSLV Mk III is designed to carry 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO). The powerful cryogenic stage of GSLV Mk III enables it to place heavy payloads into LEO’s of 600 km altitude.
- The launcher uses two S200 solid rocket boosters to provide the huge amount of thrust required for lift off.