NASA's 3-D printable tools could test blood samples on ISS

What in news:

- ✓ The new NASA project, called Omics in Space, aims to develop technology used to study 'omics' – fields of microbiology that are important to human health

About news:

- ✓ To enable astronauts aboard the International Space Station (ISS) to analyse biological samples without sending them back to Earth
- ✓ NASA researchers, including one of Indian-origin, are developing 3-D printable tools that could handle liquids like blood samples without spilling in microgravity.
- ✓ Learning how bacteria affect crew health, or how genes affect aging and disease, can ensure the safety of long-term missions to Mars and beyond.
- ✓ The new NASA project, called Omics in Space, aims to develop technology used to study 'omics' – fields of microbiology that are important to human health.
- ✓ Omics includes research into genomes, microbiomes and proteomes.
- ✓ NASA has already studied omics with efforts like the Microbial Tracking 1 experiment, which examined microbial diversity on the space station.
- ✓ But there is no way to process samples on the station right now, so they have to be sent down to Earth.
- ✓ This project will develop an automated system for studying molecular biology with minimal crew intervention.

Challenges:

- ✓ One of the biggest challenges with preparing samples is handling fluids in microgravity. Astronauts collect a variety of samples, including their own saliva and blood, as well as microbes swabbed from the walls of the ISS.
- ✓ These samples have to then be mixed with water so they can be injected into instruments for analysis. Without the proper tools, samples can spill, float or form air bubbles that could compromise results.

Expected prelims question:

Consider the following statements:

1. NASA project, called Omics in Space, aims to develop technology used to study ‘omics’ – fields of microbiology that are important to human health
2. One of the biggest challenges with preparing samples is handling fluids in microgravity

Which of above statements are/is correct?

a) Only 1
b) Only 2
c) Both 1 and 2
d) None of above

Ans – c

Expected mains question

The new NASA project, called Omics in Space, aims to develop technology used to study ‘omics’ – fields of microbiology that are important to human health, analyse its advantages and the challenges faced by the project.