For criterion D:

Way to write essay:

About satellites:

First introduction:

1. Steps:

A little description of satellites

What is a satellite

Different types of satellites

Examples of different types of satelites

Why does the satellite orbit another object

Natural satellite

Examples

Artificial satellites

Its components

A little bit of information on how it is functioning

Where does the satellite orbit around earth

How they launch a satellite

Uses of satellites

Last what is the consequences of too much satellites and how to solve it with science.

1. Step 2 make the essay
2. Step 3 it should be above 250 or 300 words.
3. Step 4 its should be effective

Satellites

There are millions of objects that orbit celestial bodies by the body’s gravitational pull. These objects are termed satellites. So what is a satellite? A satellite is an object which revolves/ orbits other celestial bodies like stars, asteroids, planets, black holes, etc. The object can be termed as a satellite if it revolves or completes a full orbit around the planet. There are 2 types of satellites, they are Artificial satellites and Natural satellites. What are Natural satellites?  Natural satellites are satellites that are not man-made and are an astronomical body that orbits a planet or a minor planet, it is any celestial body that is held in orbit by the gravitational force, by the satellite’s speed it is defeating the downward pull of the gravity of the planet. Some examples of natural satellites are the moon, the planets which orbit the sun, the sun which orbits the galactic center of the galaxy (where there is a supermassive black hole).  Artificial satellites are man-made satellites that are not naturally made. They are noncelestial bodies orbiting planets, asteroids, etc. They have thrusters that constantly regulate the position of the satellite in orbit or else it would crash into the atmosphere.

Artificial satellites consist of different components to do different work like, Predicting natural disasters, predicting the weather, control the GPS (Global Positioning System), etc. Some of the components are The communication system: It is used to send signals from outer space to earth about information about geographical changes of the earth etc, they include antennas or to avoid the antenna colliding with space debris they send signals through dish Atenas, they are like Atenas but are better at scanning a particular area. Solar panels: Solar panels are placed on satellites because it absorbs the solar energy from the sun then uses that power charge up the propulsion system. The propulsion system: The propulsion system consists of thrusters that help the satellite to travel from one place to another in space. The satellite uses these components to function in orbit. But I wonder how they function? The satellite transmits signals from space to the earth through the communication systems then signals are sent from the earth back to the satellite using radio transmitters. Satellites orbit around the earth, they have different orbits in different positions. Satellites in Geostationary Orbit (GEO) Circle earth above the equator from west to east following the rotation of the earth. They mainly orbit in the thermosphere, the thermosphere is 600 kilometers high from ground level. The International Space Station (ISS) orbits in that layer. Satellites are launched into orbit in one way, that way is through rockets and space shuttles. They have to reach above 40,000 m/s to enter in lower space orbit then they turn sideways and open up the satellite and let it orbit the earth. Satellites are used for many things, some common are Navigation: Satellites are used to navigate or guide people using the Global Positioning System (GPS), which navigates people to different locations or places on earth. Weather: The meteorological team deals with the weather. They send specific satellites to observe the weather of the earth, meteor logistics use these satellites to predict natural disasters and to observe whether there are changes in the atmosphere. ISS: The International Space Station a huge spacecraft that orbits the earth like a satellite. It serves as a home for astronauts. It is also used as a space laboratory.

900 satellites have been launched each year by every country in total. This causes the production of space debris due to satellite accidents in their orbits, the leftovers of the accident begin to orbit the earth at huge speeds approximately 30,000 km/hr. The space debris a size of a millimeter would be able to take out a space station. 3-4 satellites are being destroyed every year like this. We have put billions of dollars of infrastructure in the zone where it could be destroyed instantly like Satellites that collect weather data, Asteroid tracking, GPS, Communications, etc. The space debris orbiting the earth is increasing each year. But the main problem is, that when 2 satellites collide it activates a chain reaction for example. If 2 satellites collide the parts (or leftovers) from those satellites collide with other satellites and so on. It is caused by the orbital speeds because it is very fast. Some of these junk satellites either fall to earth or stay up in space and orbit the earth in different criss-cross orbits. Because of this, we won’t be able to send rockets or satellites into space, or else they will collide with the space junk which will cause losses for the country or the whole world. To solve this problem of space junk through science is already being tested. There are many ways. We could use a small rocket to go into space which will have a net. It will capture the space junk them will use its thrusters and will fall to earth it is being tested as capture and return missions. Or if the space junk is too big there will be a bigger space junk catcher which will use a harpoon attached to a tether and will capture the space junk and fall to earth, to reduce air friction there will be a parachute attached to it. Another reliable method is huge electromagnets. Satellites are usually made out of metal which will be attracted to the magnet and the electromagnetic field will cause a sort of shockwave and will cause the satellites to fall to earth. The magnetic method is the most reliable because it will not cause more space junk in the process. The last method will be a satellite with a laser, the satellite will fire lasers at the target and will use the laser to push it towards the earth. Gravity will pull the remains of the satellites down and then people will come and pick them up, they can repair the satellite or throw it into a junk pile on earth. All the methods are incredibly slow but are useful. Over a decade All the space junk might be cleared out of the way. This will save a lot of money for the countries and life on earth because some of the space junk over 40,000 metric tons fall each year. This could increase not only creating a prison for humanity but killing millions too. With this method, humanity can expand beyond earth and colonize our solar system and beyond.

References:

Sites:

<https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-a-satellite-58.html>

<https://www.space.com/24839-satellites.html#:~:text=A%20satellite%20is%20an%20object,Space%20Station%20orbiting%20the%20Earth>).

Videos :

<https://www.youtube.com/watch?v=yS1ibDImAYU&t=10s>

PDF’S :

<file:///C:/Users/AahaannChavan/Downloads/MYP_1_Unit_5_Artificial__satellites.pdf>