UPSC MAINS ANSWER WRITING

9. Do you think that the country has a robust ecosystem to produce better semiconductor chips? Explain.

Intro:- Today we can say India have power to produce semiconductor like devices in the country because today we have that technology skills to present or we are capable to invest through other foreign countries to collaborated with us.

All modern era digital devices, as well as future innovations, rely on the semiconductor sector.

Some of the factor that we can say we have robust ecosystem as follows:-

(i) Many business are taking steps to untangle their expanding supply chains and forging closer collaborations with chip firms to secure supplies in the long term.

(ii) The government also recently announced the PLI and DLI schemes as major steps towards building a semiconductor ecosystem in the country.

(iii) Infrastructure is critical to supply chain strategy like:-

(a) Incorporate capacity planning

(b) Logistics
(c) Production and quality control
(d) Supply Chain
(e) Government support
(f) Funding

(iv) Power semiconductors — The power management integrated circuits (PMICs) and System Basis Chips (SBCs) helps in developing designs for developing automotive, industrial, & consumer applications and extend industry life and power dissipation.

(v) Clean Energy :- India has been one of the fastest growing solar PV markets in recent times, making the country a prime market for efficient PV investors.

(vi) Water :- Semiconductor manufacturing consumes large quantities of water for a variety of purposes ranging from equipment cooling to water surface - cleaning.

(vii) Large amount of UPW are consumed in all fabs - according to the International technology Roadmap for Semiconductors (ITRS) 2011, device fabs utilize 2 liters / cm^2 of UPW per wafer out.

(viii) Given India's substantial expertise and experience, it may be better if the government focus it on commercial assistance like:-

(a) design centres
(b) testing facilities
(c) packaging along that have enough space.
(d) water
(e) Manpower

(ix) Many states are attempting to establish plants in their territory.
for example:- over 250 acres of land have been allocated for fabrication units in Bangalore, Hyderabad, and Dharwad.

(x) Because of the semiconductor value chain is interrelated and linked with several industries governments must develop policies that address all the crucial characteristics in the long run.

At the end we can conclude that government policies should also focus on assuring and ensuring access to foreign technology suppliers through trade and foreign policy to promote a global level of collaboration.