Section-2

Working of Turbo-Prop engine :-

The Main Components of Turbo-Prop engine are a Propeller, gear reduction unit, a Compressor, a Combustion, gas turbine and the nozzles. In this engine 30 to 90% of the total Propulsive thrust is generated by the gas turbine and the remainder is developed by the expansion of the gases in nozzles. Bcz to this Power generated in the gas turbine is used for driving the Compressor and the Propeller, while in case of turbojet engines the turbine Power is only used to drive the Compressor and the auxiliaries. A large part of this air drawn by the Propeller is passed through the ducts around the engine and the remainder is compressed in the diffuser by ram Compression and further in the Compressor.

Fuel is burnt in the Combustion and the resultant high temperature gases are expanded in the turbine and finally in the nozzles

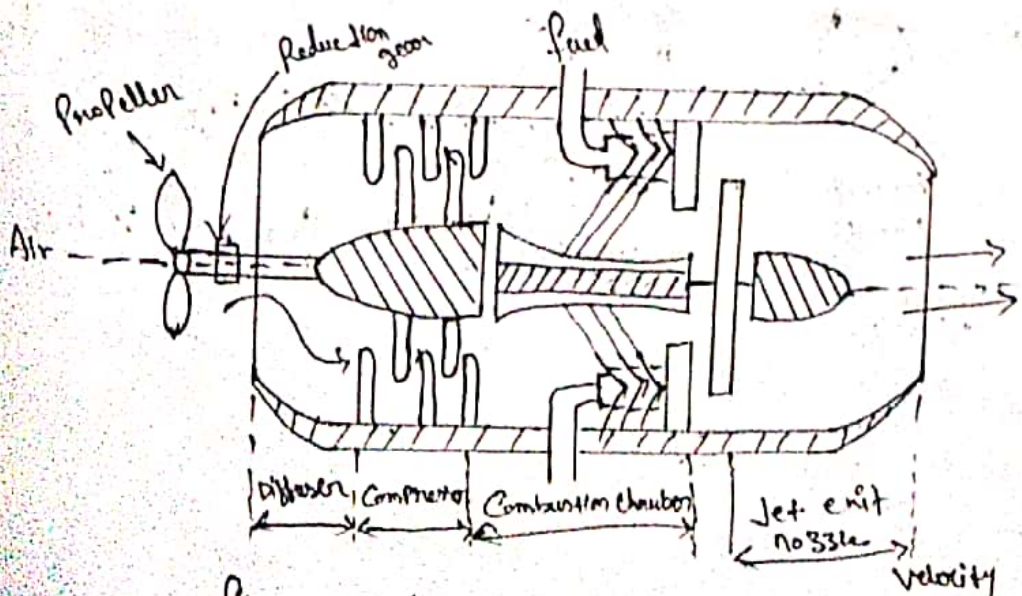

fig:- Turbo-Prop engine

Section-2

Q1. **Working of ramjet engine:-** The air entering into ramjet with supersonic speed is slowed down to sonic velocity in the supersonic diffuser, increasing air pressure. The air pressure is further increase in the subsonic diffuser increasing also the temperature of air. The diffuser section is designed to get correct ram effect. The fuel injected into combustion chamber is burned with help of flame igniter. The high pressure and high temperature gases are passed through the nozzle converting into pressure energy into kinetic energy. The high velocity gas leaving the nozzle provide required forward thrust to.

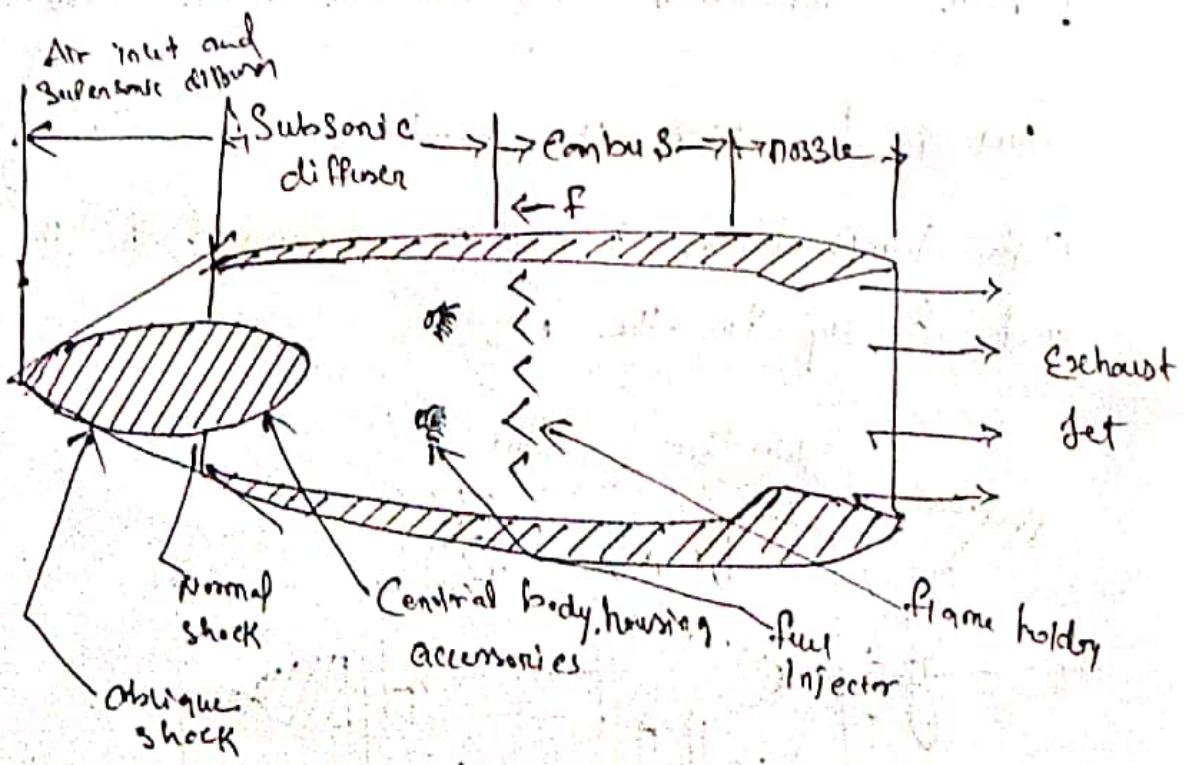

Fig: Ramjet

* Solid Propellent rocket engine:-

It consist of a fuel and oxidizer that are Pre-mixed in a solid form. once the solid fuel is ignited, the resulting thrust cannot be regulated or turned off.

* Liquid Propellent rocket engine:-

It consist of a fuel and oxygen in liquid state. They are combined in a combustion chamber and ignited.