

Section 4

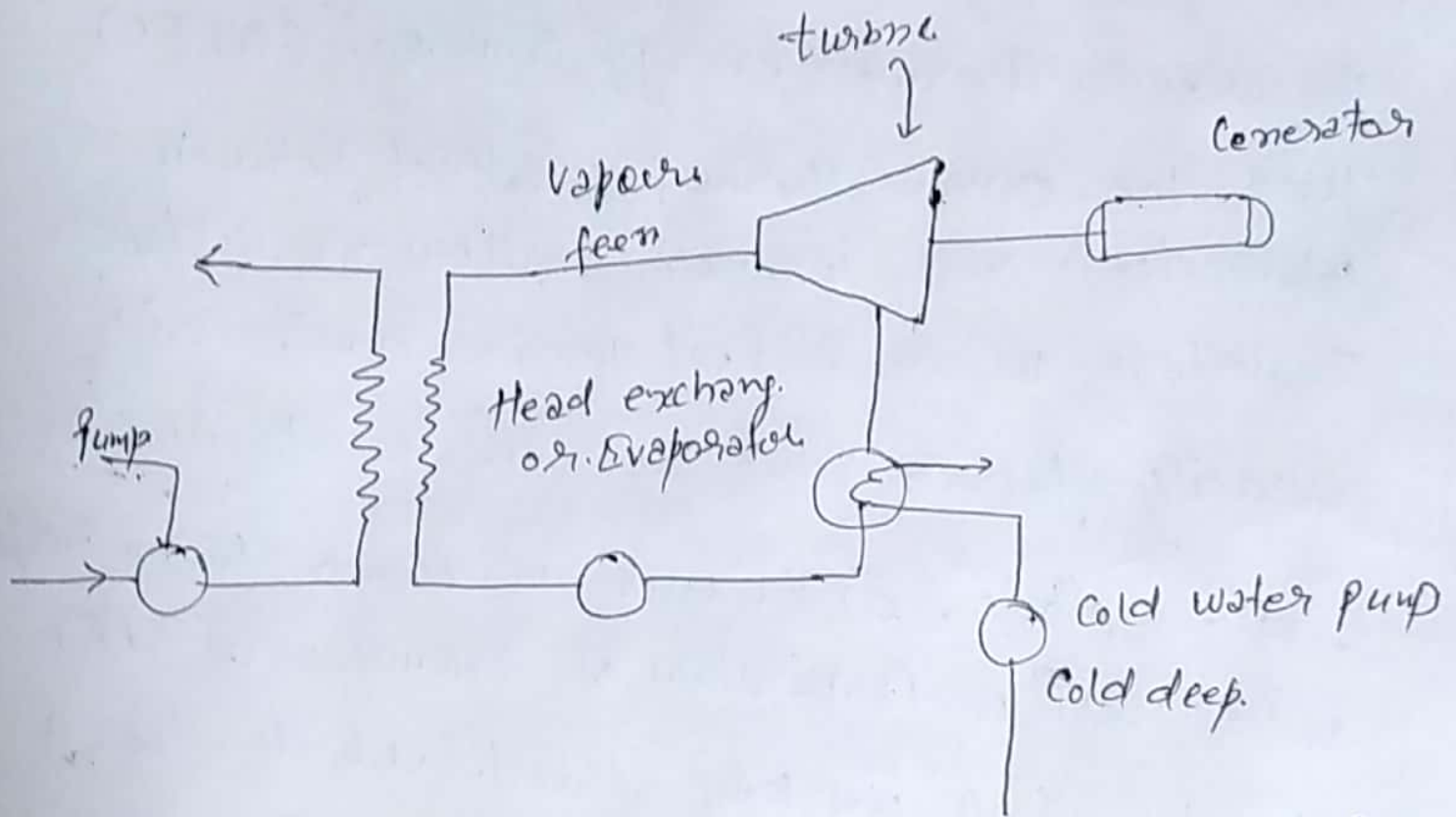
Ans 1

Basic Principal of the OTEC :-

The Ocean Thermal Energy Conversion (OTEC) uses the ocean thermal gradient between colder deep and warmer shallow or surface seawater to run a heat engine and high capacity factor and so can operate in base load mode. OTEC uses the ocean's warm surface water with a temperature of around 25°C (77°F) to vaporize a working fluid which has a low boiling point such as ammonia. The vapor expands and spins a turbine and spins a turbine coupled to a generator to produce electricity. The vapor is then cooled by seawater that has been pumped from the deeper ocean layer.

Open-Cycle OTEC :- OTEC uses warm surface water directly to make electricity, the warm seawater is first pumped

into a low pressure container, which caused it to boil. It condensed into a liquid by exposure to cold temperatures from deep ocean water.



In this system, the warm water from ocean surface is admitted through the decelerator to the flash evaporator which is maintained under high vacuum. As a result a low pressure stream is generated due to throttling effect and the remainder liquid is discharged back to the ocean at right depth, the decelerator also removed. The dissolved non-condensable gases from water before supplied to the evaporator.