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Q.1

Basic Principle of OTEC :→

The principle of Ocean thermal energy conversion (OTEC) is that that there is a temperature difference b/w water at the bottom of the sea and the water at the top.

The absorption of solar radiation in the water varies and can be expressed by Lamberts law :—

$$-\frac{dI_y}{dy} = \mu I$$

Or, $$I_y = I e^{-\mu y}$$

where, I_y = Radiation intensity at depth y from water surface and falls exponentially with depth.

I = Radiation intensity at water surface

μ = Extinction or absorption coefficient.

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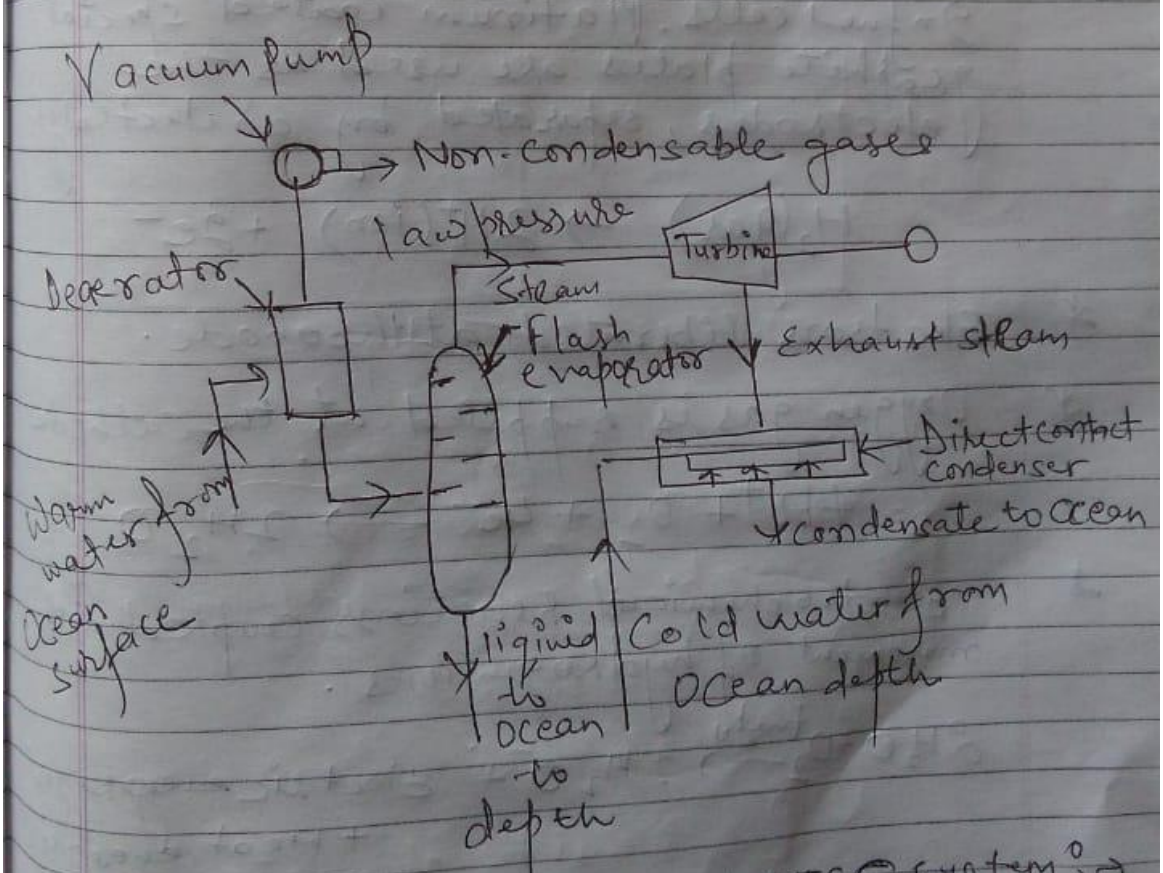
* Open OTEC Cycle :-

In this system, the warm water from ocean surface is admitted through the deaerator to the flash evaporator which is maintained under high vacuum.

As a result, a low pressure stream is generated due to throttling effect and remainder liquid is discharged back to the ocean at high depth.



Open OR Claude cycle OTEC system :->