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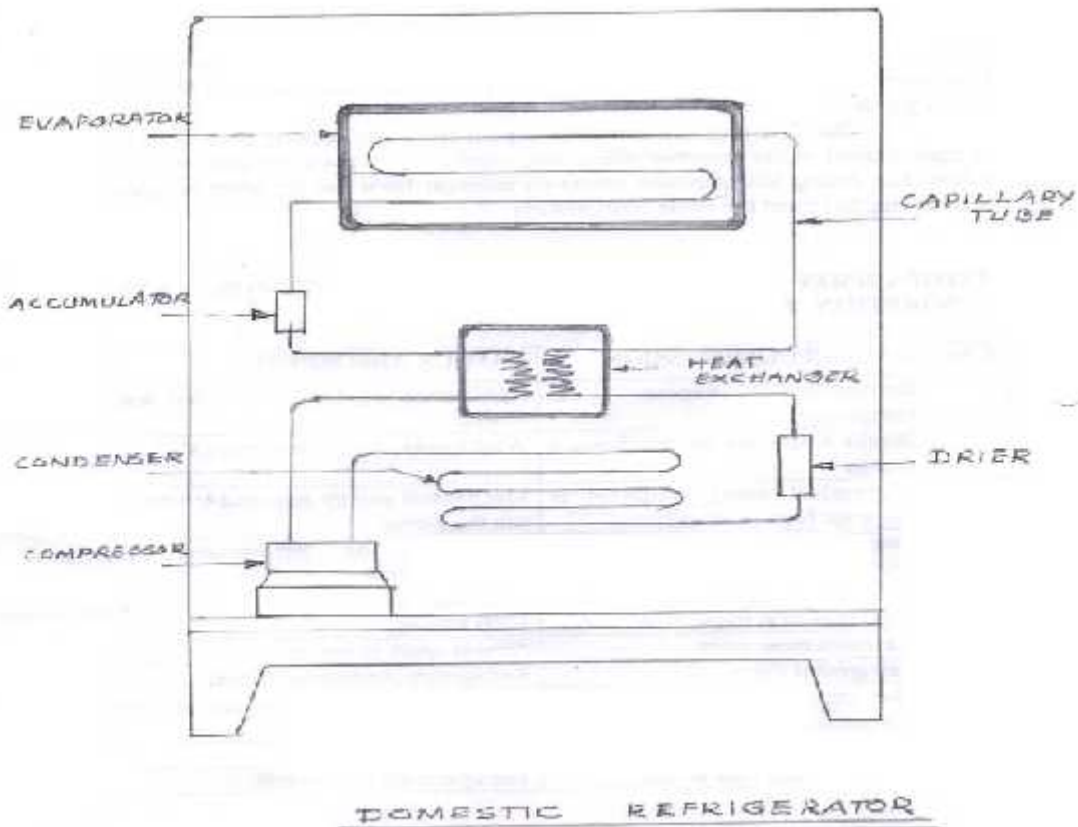
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## Department of Mechanical Engineering Domestic refrigerator

Domestic refrigerator operates on vapour compression cycle and the refrigerant generally used is Freon 12. Its primary function is to provide a low temperature space for the preservation of food. Besides house hold uses, domestic refrigerators are also used in Medical shops, Hospitals, Hotels, Offices and Laboratories. The capacity of the domestic refrigerator is given by the gross internal volume of the unit and is expressed in litres. The common size of the refrigerators are 100, 165, 200 and 300 litres.



The main components of domestic refrigerator are 1.Compressor 2.Condenser 3.Receiver 4.Drier 5.Capillary tube 6.Evaporator 7.Accumulator. Layout of these parts along with flow direction of the refrigerant is shown in figure.

The refrigerant vapour drawn from the evaporator is compressed in compressor and delivered to the condenser. Before passing on to the evaporator, it is expanded in capillary tube. Capillary tube is used as throttling device to reduce the pressure of the refrigerant. The low pressure liquid refrigerant evaporates by absorbing its latent heat thus producing refrigeration effect in the evaporator (freezer).

Domestic refrigerator has hermetically sealed compressor which is located at the base of the cabinet. Condenser is essentially an air cooled coil. The evaporator coil is placed at top of the inside cabinet. The evaporator produces low temperature up to  $-15^{\circ}\text{C}$  and temperature around  $7$  to  $10^{\circ}\text{C}$  can be maintained in the refrigerating section due to convection current of air inside the cabinet. Heavy cold air from freezer moves downwards and becomes warm after cooling the products. The warm air being light moves upwards due to density difference. Thus the air movement is maintained continuously in the refrigerated space.