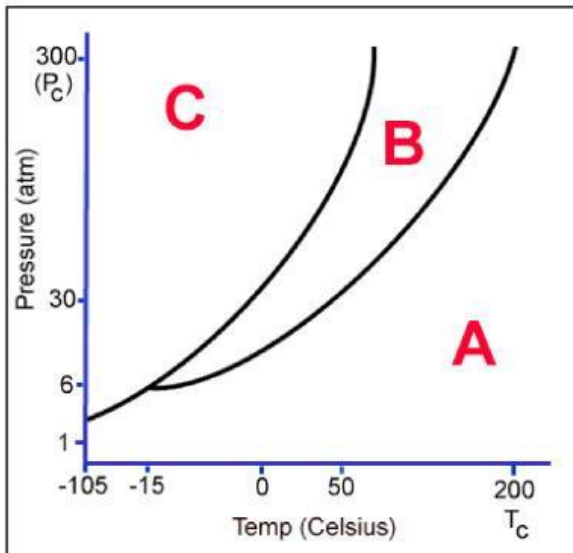


# HONORS

## Assignment 1 : Phase Diagrams

1. Answer the questions regarding the Phase Diagram below by selecting correct options from the drop-down boxes:



The area of the graph that represents the Liquid Phase is :

The area of the graph that represents the Gas Phase is :

The area of the graph that represents the Solid Phase is :

A Phase Change from A to B is known as :

A Phase Change from B to A is known as :

A Phase Change from C to B is known as :

A Phase Change from B to C is known as :

A Phase Change from A to C is known as :

A Phase Change from C to A is known as :

Freezing occurs by :

Melting occurs by :

## 2. Drag & Drop each of the following items onto the Phase Diagram :

Temperature ( $^{\circ}\text{C}$ )

Critical Point

Vaporization

Solid

Boiling Point

Melting

Triple Point

Melting Point

Freezing

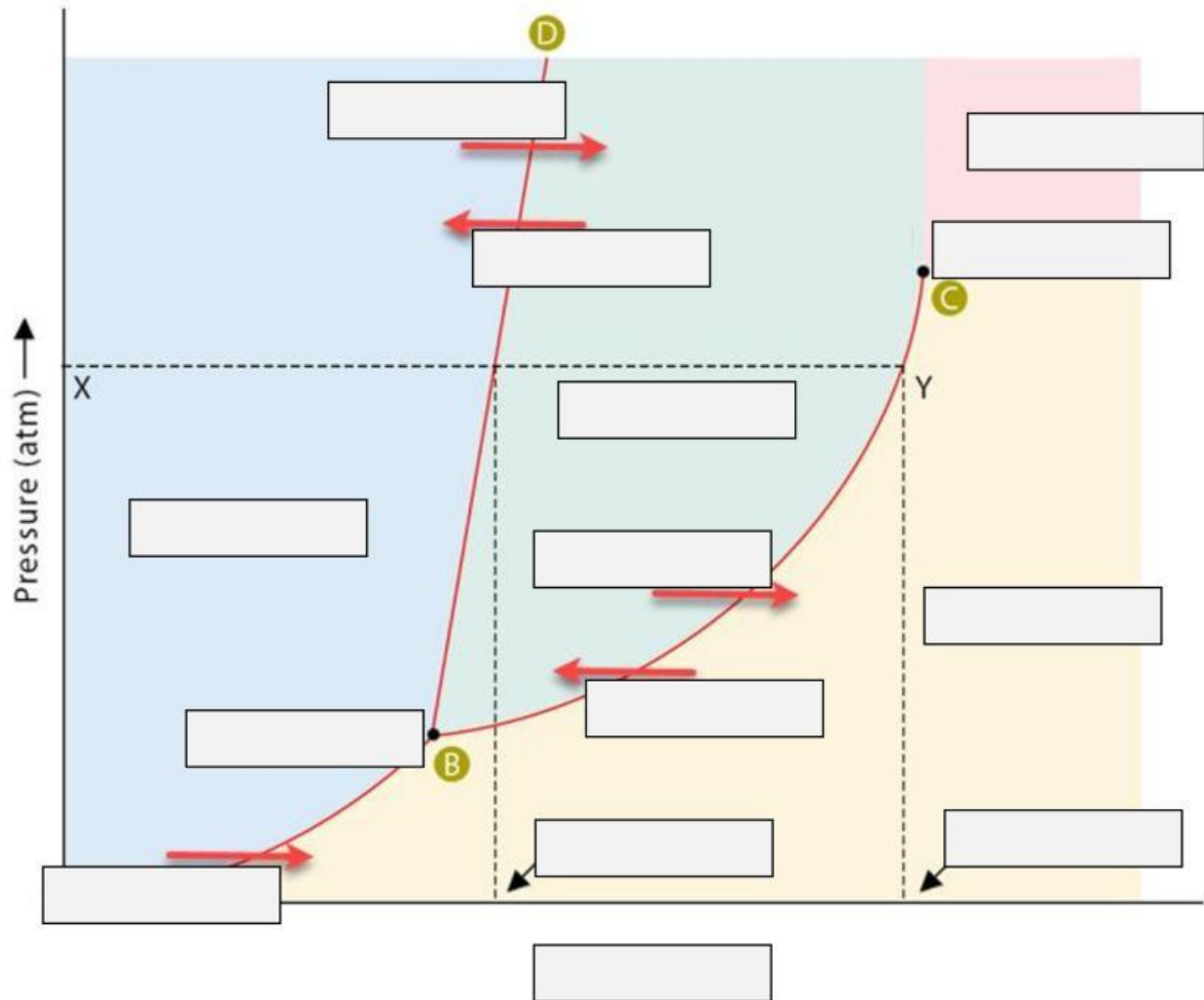
Condensation

Supercritical Fluid

Sublimation

Liquid

Gas



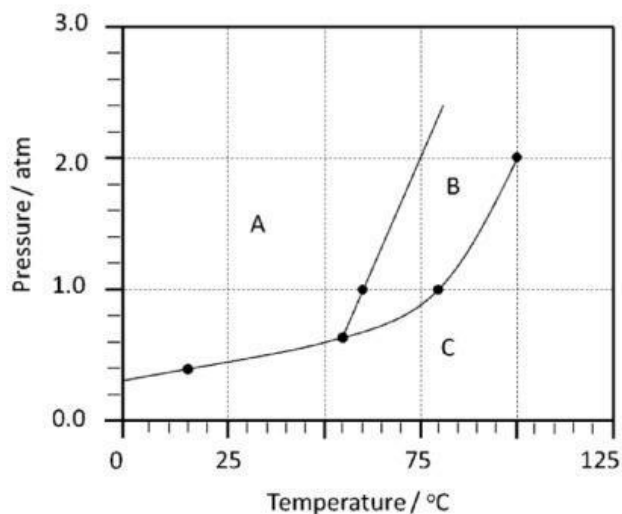
### 3. Interpret the Phase Diagram to the right and answer the following questions:

Above 100°C and below 2 atm this substance can ONLY exist as a ...

- a) supercritical fluid
- b) liquid
- c) solid
- d) gas

Above 2 atm and below 75°C this substance can ONLY exist as a ...

- a) supercritical fluid
- b) liquid
- c) solid
- d) gas



### 4. Interpret the Phase Diagram to the right and answer the following questions:

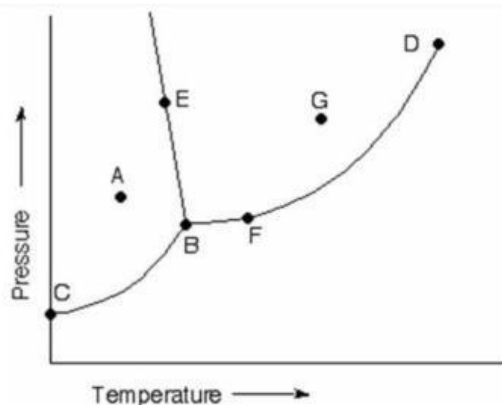
Which line represents the Sublimation Curve :

Which line represents the Vaporization Curve :

Which line represents the Fusion Curve (interface between the Liquid and Solid Phases) :

Which point represents the Triple Point :

Which point represents the Critical Point :



**5. Identify the following lines or points on the Phase Diagram below :**

fa :

bf :

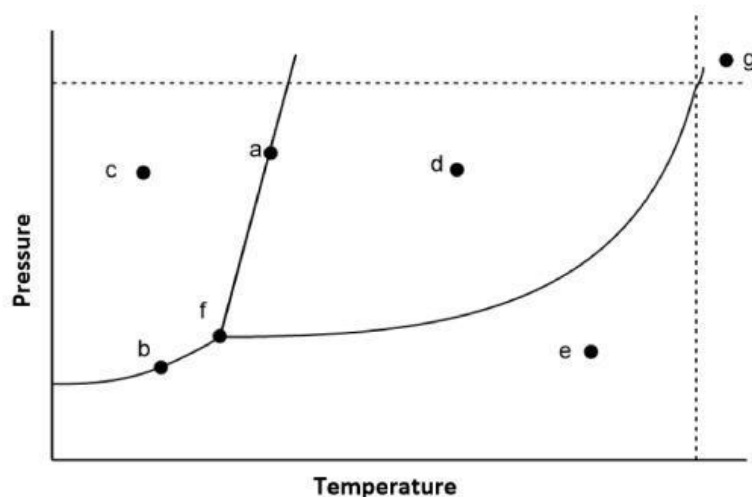
f :

c :

d :

g :

e :



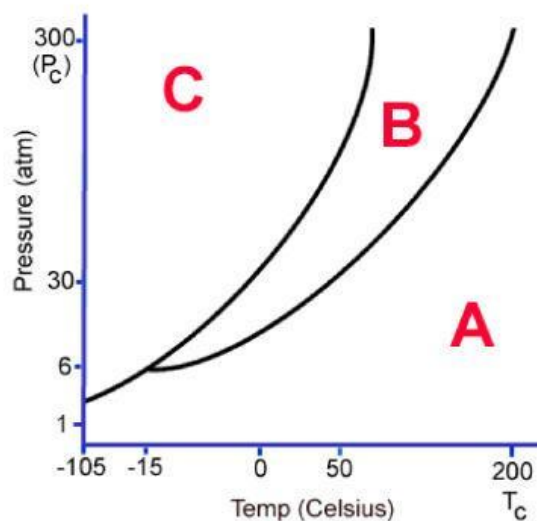
**6. Interpret the Phase Diagram to the right and answer the following questions:**

The Triple Point of this substance occurs at :

- a)  $-15^{\circ}\text{C}$  and 6atm
- b)  $200^{\circ}\text{C}$  and 300atm
- c)  $0^{\circ}\text{C}$  and 6 atm
- d)  $-15^{\circ}\text{C}$  and 1 atm

At 30 atm, the melting Point of this Substance is :

- a)  $-105^{\circ}\text{C}$
- b)  $50^{\circ}\text{C}$
- c)  $0^{\circ}\text{C}$
- d)  $-15^{\circ}\text{C}$



At 30 atm, the Boiling Point of this Substance is :

- a)  $200^{\circ}\text{C}$
- b)  $-15^{\circ}\text{C}$
- c)  $50^{\circ}\text{C}$
- d)  $0^{\circ}\text{C}$
- e)  $-105^{\circ}\text{C}$

At 1 atm and 0°C, this substance can exist as :

- a) a Gas only
- b) a Liquid Only
- c) a Solid Only
- d) a Solid and a Gas
- e) a Liquid and a Gas

If the temperature of the substance is held constant at -15 °C, the phase change that would occur with a pressure increase from 1 atmosphere to 30 atmospheres is:

- a) Sublimation
- b) Freezing
- c) Vaporization
- d) Condensation
- e) Melting
- f) Deposition

Above 200 °C , this substance can **only** exist as:

- a) Solid
- b) Liquid
- c) Gas