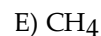
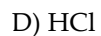
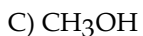
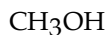


MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

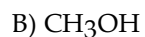
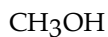
- 1) Based on molecular mass and dipole moment of the five compounds in the table below, which should have the highest boiling point? 1) _____

Substance	Molecular Mass (amu)	Dipole Moment (D)
Propane, CH ₃ CH ₂ CH ₃	44	0.1
Dimethylether, CH ₃ OCH ₃	46	1.3
Methylchloride, CH ₃ Cl	50	1.9
Acetaldehyde, CH ₃ CHO	44	2.7
Acetonitrile, CH ₃ CN	41	3.9

- A) CH₃CN
 B) CH₃CH₂CH₃
 C) CH₃OCH₃
 D) CH₃Cl
 E) CH₃CHO
- 2) Of the following substances, only _____ has London dispersion forces as its only intermolecular force. 2) _____



- 3) Of the following substances, only _____ has London dispersion forces as the only intermolecular force. 3) _____



4) Which one of the following should have the lowest boiling point? 4) _____

PH₃
H₂S
HCl
SiH₄
H₂O

A) H₂S B) HCl C) PH₃ D) SiH₄ E) H₂O

5) Of the following substances, _____ has the highest boiling point. 5) _____

H₂O
CO₂
CH₄
Kr
NH₃

A) NH₃ B) CO₂ C) H₂O D) Kr E) CH₄

6) Of the following, _____ has the highest boiling point. 6) _____

N₂
Br₂
H₂
Cl₂
O₂

A) O₂ B) Br₂ C) N₂ D) H₂ E) Cl₂

7) In which of the following molecules is hydrogen bonding likely to be the most significant component of the total intermolecular forces? 7) _____

CH₄
C₅H₁₁OH
C₆H₁₃NH₂
CH₃OH
CO₂

A) CH₃OH
B) C₅H₁₁OH
C) CH₄
D) C₆H₁₃NH₂
E) CO₂

8) Which of the following has dispersion forces as its only intermolecular force? 8) _____

- CH₄
- HCl
- C₆H₁₃NH₂
- NaCl
- CH₃Cl

- A) NaCl
- B) HCl
- C) CH₄
- D) CH₃Cl
- E) C₆H₁₃NH₂

9) The substance with the largest heat of vaporization is _____. 9) _____

- I₂
- Br₂
- Cl₂
- F₂
- O₂

- A) I₂
- B) Br₂
- C) F₂
- D) O₂
- E) Cl₂

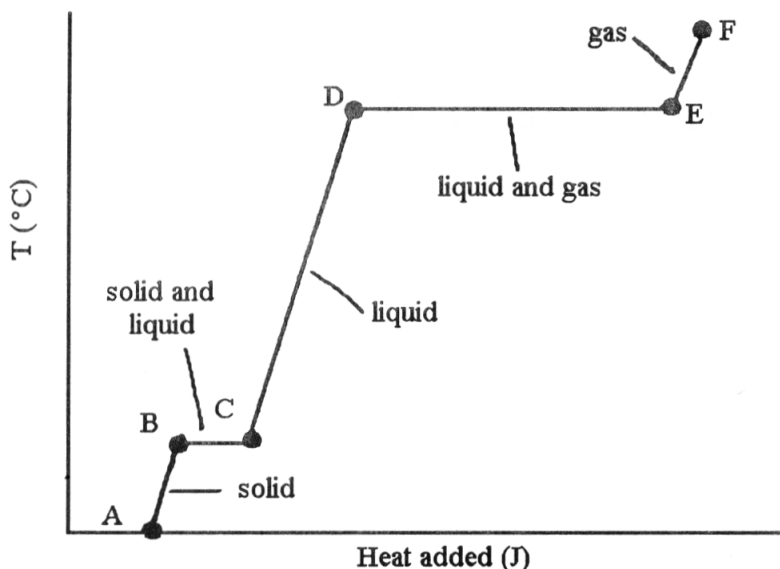
10) Of the following, _____ is an exothermic process. 10) _____

- melting
- subliming
- freezing
- boiling

- A) freezing
- B) melting
- C) subliming
- D) boiling
- E) All of the above are exothermic.

11) The heat of fusion of water is 6.01 kJ/mol. The heat capacity of liquid water is 75.3 J/mol • K. The conversion of 50.0 g of ice at 0.00°C to liquid water at 22.0°C requires _____ kJ of heat. 11) _____

- A) 0.469
- B) 21.3
- C) 3.8×10^2
- D) 17.2
- E) Insufficient data are given.



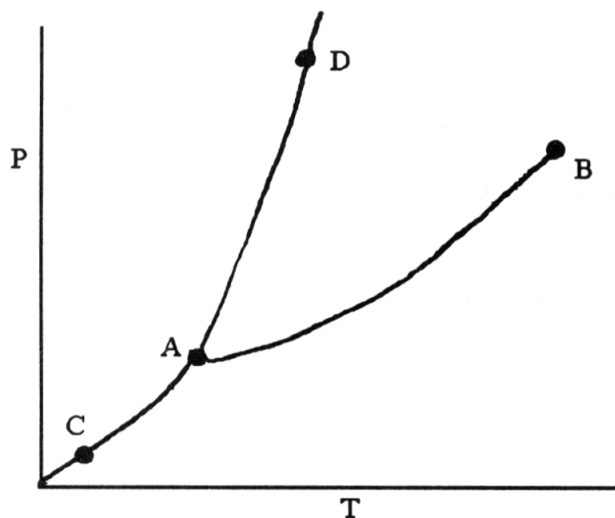
- 12) The heating curve shown was generated by measuring the heat flow and temperature for a solid as it was heated. The slope of the _____ segment corresponds to the heat capacity of the liquid of the substance. 12) _____
- A) AB B) BC C) CD D) DE E) EF
- 13) The heating curve shown was generated by measuring the heat flow and temperature for a solid as it was heated. The slope of the _____ segment corresponds to the heat capacity of the solid. 13) _____
- A) AB B) BC C) CD D) DE E) EF
- 14) The heating curve shown was generated by measuring the heat flow and temperature of a solid as it was heated. The heat flow into the sample in the segment _____ will yield the value of the ΔH_{vap} of this substance. 14) _____
- A) AB B) BC C) CD D) DE E) EF
- 15) Of the following, _____ should have the highest critical temperature. 15) _____
- CBr₄
 CCl₄
 CF₄
 CH₄
 H₂
- A) CCl₄ B) H₂ C) CH₄ D) CF₄ E) CBr₄

16) Of the following, _____ is the most volatile.

16) _____

- CBr₄
- CCl₄
- CF₄
- CH₄
- C₆H₁₄

- A) CF₄ B) CCl₄ C) C₆H₁₄ D) CBr₄ E) CH₄



17) On the phase diagram below, segment _____ corresponds to the conditions of temperature and pressure under which the solid and the gas of the substance are in equilibrium.

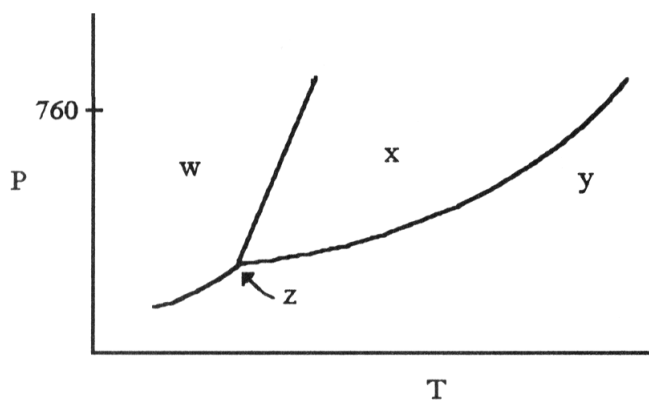
17) _____

- A) CD B) AB C) AD D) BC E) AC

18) On the phase diagram shown, the coordinates of point _____ correspond to the critical temperature and pressure.

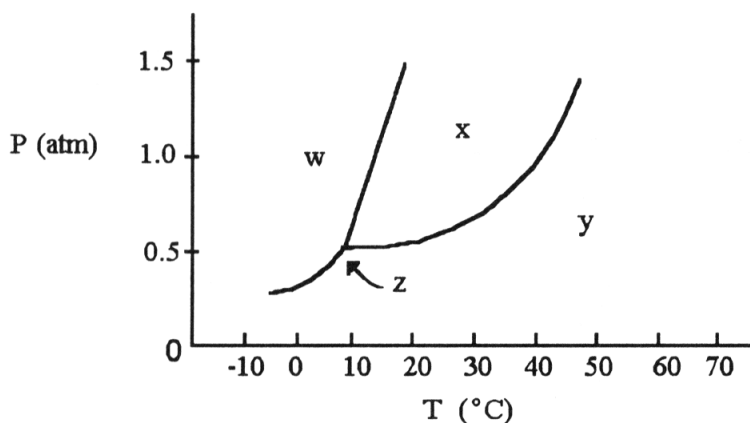
18) _____

- A) A B) B C) C D) D E) E



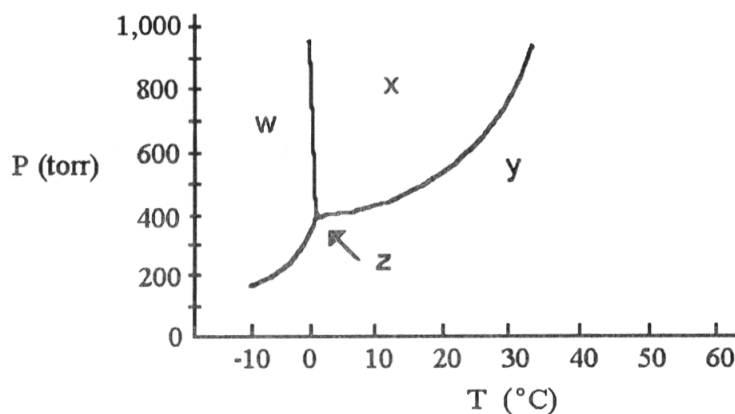
19) The phase diagram of a substance is given above. The region that corresponds to the solid phase is 19) _____

- A) w B) x C) y D) z E) x and y



20) The normal boiling point of the substance with the phase diagram shown above is _____ °C. 20) _____

- A) 10 B) 20 C) 30 D) 40 E) 50



21) The phase diagram of a substance is shown above. The area labeled _____ indicates the gas phase for the substance. 21) _____

- A) w B) x C) y D) z E) y and z

- 22) According to the phase diagram shown above, the normal boiling point of this substance is _____ °C. 22) _____
 A) -3 B) 29 C) 0 D) 38 E) 10
- 23) Which one of the following cannot form a solid with a lattice based on the sodium chloride structure? 23) _____
 NaBr
 LiF
 RbI
 CuO
 CuCl₂
 A) RbI B) NaBr C) CuCl₂ D) LiF E) CuO
- 24) Gallium crystallizes in a primitive cubic unit cell. The length of the unit cell edge is 3.70 Å. The radius of a Ga atom is _____ Å. 24) _____
 A) 7.40
 B) 0.930
 C) Insufficient data is given.
 D) 3.70
 E) 1.85
- 25) Potassium metal crystallizes in a body-centered cubic structure with a unit cell edge length of 5.31 Å. The radius of a potassium atom is _____ Å. 25) _____
 A) 1.33 B) 1.88 C) 2.30 D) 5.31 E) 2.66
- 26) Which of the following is not a type of solid? 26) _____
 ionic
 molecular
 supercritical
 metallic
 covalent-network
 A) supercritical
 B) covalent-network
 C) molecular
 D) ionic
 E) metallic

27) _____ solids consist of atoms or molecules held together by dipole-dipole forces, London dispersion forces, and/or hydrogen bonds.

27) _____

- A) Molecular
- B) Covalent-network
- C) Metallic and covalent-network
- D) Metallic
- E) Ionic

Answer Key

Testname: CHAPTER 11 PRACTIS QUESTIONS

- 1) A
- 2) E
- 3) A
- 4) D
- 5) C
- 6) B
- 7) A
- 8) C
- 9) A
- 10) A
- 11) B
- 12) C
- 13) A
- 14) D
- 15) E
- 16) E
- 17) E
- 18) B
- 19) A
- 20) D
- 21) C
- 22) B
- 23) C
- 24) E
- 25) C
- 26) A
- 27) A