Student Name_____ Prof: Umair Ali Khan (www.umairkhanacademy.com) 03099164667

1)Half atmospheric pressure
(a) 400 torr (b) 50662 pa (c)101.325 pa (d) 8.5 pounds

2)The molecules of a gas show more deviation from ideal behavior at low temp because :
(a)Attractive forces dominate at low temp
(b)kinetic energies are increased
(c)Collision become less frequent
(d)densities of the gases increase

3)Air is a mixture of gases .the molecules of the air do not settle down due to:
(a) Different molar masses (b) non polar nature of gases
(c)Presences of dust particle in the air (d) elastic collision of gas molecules

4)A real gas obeying Van der Waals equation will resemble ideal gas if the:
(a) both a and b are large (b) both a and b are small
(c) a is small and b is large (d) a is large and b is small

5)What is absolute zero value:
a) 273^{0}C b) 173^{0}C c) 0^{0}C d) -273^{0}C

6)The boiling point of water at degree Fahrenheit is.
a) 100^{0}F b) 180^{0}F c) 212^{0}F d) None

7)If absolute temp- of a gas is doubled and pressure is reduced to one half, the volume of the gas will be:
a) remain changed b) reduced to 1/4 c) increase 4 time d) All

8)Order of the rate of diffusion of gases NH_3, CO_2, SO_2, Cl_2 is
a) NH_3,> SO_2,> Cl_2> CO_2, b) NH_3, > CO_2,> SO_2,> Cl_2
c) Cl_2,> SO_2,> CO_2,>NH_3 d) None

9)The deviation of a gas from ideal behavior is maximum at:
a) -10^{0}C and 5atm b) -10^{0}C and 1 atm c) 0^{0}C and 2 atm d) All

10)The critical temperature of Ar gas is low as compared to NH_3 and SO_2 due to the reason that
(a) Ar is monoatomic (b) It has small sized
(c) It has low polarizability (d) It has four lone pair in it

11)The density of methane gas at 2 atm pressure at 27^{0}C is:
(a) 26g dm^{-3} (b) .26g dm^{-3} (c) 1.30gdm^{-3} (d) 0.13gdm^{-3}

12)At constant Pressure, doubling the Absolute temperature causes the gas volume to:
a) Decrease to half (b) Double
(c) Increases 4-times (d) Decreases to ¼

13)What gas is denser at 1atm and 298k?
(a)O_2 (b) Cl_2 (c) CO_2 (d) N_2

14)What is the simplest form of matter:
(a)Solid (b)Liquid (c)Gas (d)Plasma

15)Which of the following expression about general gas equation incorrect:
(a)PV = RT/d (b)d = RT/PV (c)PVM = nRT (d) All of these

16)The van der Waals equation explain the behavior of
(a) ideal gases (b) real gases (c)liquids (d)non-real gases

17)The rate of diffusion of H_2 as compared with He is
(a)1.4 times (b) 1/2 times (c)2 times (d)4 times

18)_____ is called fourth state of matter.
(a)solid (b)plasma (c) liquid (d)gases

19)Mathematically Boyles law is shown as:
(a)PT=K (b)VT=K (c)PT=K (d)PV=K

20)The ideal gas constant R when expressed in dm^3 atm K^{-1} mol^{-1} unit has a value of
(a) 0.0821 (b) 1.0821 (c) 82.21 (d) 82.1

21)Partial pressure of oxygen in the lungs is
(a) 760torr (b) 320torr (c) 159torr (d) 116torr

22)The temperature at which a real gas obeys the ideal gas laws at an appreciable pressure range is called the :
(a) Inversion Temp (b) Critical Temp
(c) Transition Temp (d) Boyles Temp

23)If the value of "a" and "b" are zero for certain gases then the gas is
(a) Ideal (b) non ideal (c) real (d) any diatomic gas

24)Rate of diffusion of CO and N_2: are same at room temperature due to the reason that
(a)Both are diatomic molecules
(b) Both have same multiple bond in them
(c) Both have lone pairs in them
(d) both have same molar masses

25)The constant factor in Charles law is:
(a) Volume (b) Temperature (c) Pressure (d) All of these

26)The unit of pressure used by the meteorologists is:
(a)KPa (b)Nm-2 (c)atm (d)Millibar

27)Followings are constants in Boyle's law:
a) Pressure & quantity of gas b) Volume & quantity of gas c) Temperature & pressure d) None

28)In S.I system, unit of pressure is:
a) Torr b) Pascal c) Nm^{-2} d) Atmosphere

29)According to Boyle's law, pressure is directly proportional to:
a) Volume b) Volume inverse c) Temperature d) Quantity of gas

30)Charles's law is obeyed when temperature is taken at:
a) Celsius scale b) Kelvin scale c) Fahrenheit scale d) All

31)To derive general gas equation, variable taken are:
a) Temperature & pressure b) Volume & quantity of gas
c) Both _a' & _b' d) None

32)Unit of "R" according to S.I system is:
a) J/K/mol b) Cal/k/mol
c) Cm^{3}torr/k/mol d) dm^{3}atm/k/mol

33)Which is suitable for density calculations?
a) d= PM/RT b) d= PM/nRT c) d= RT/PM d) d= PR/nT

34)Equal volume of all ideal gases at same temperature & pressure contain equal number of molecules is:
a) Graham's law b) Dalton's law
c) Avogadro's law d) Boyle's law

35)Constants of Dalton's law are:
a) Volume & pressure b) Temperature & volume c) Volume & quantity of gas d) None

36)According to Dalton's law, partial pressure of a moist gas is:
a) P (moist) = p (dry) + Aqueous tension
b) P (moist) = p (dry) + p (w. vapors)
c) Both _a & _b
d) P (moist) = p (dry gas) + Atmospheric pressure

37)Graham's law of gases is concerned with:
a) Density & pressure of gas b) Diffusion & density
c) Effusion & density d) Both _b' & _c'

38)The gas law giving the relationship between volume and pressure of gas is:
a) Dalton's Law b) Charles's Law
c) Boyle's Law d) Graham's Law

39)The S.I unit of pressure is
a) Torr b) mmHg c) psi d) Nm^{-2}

40)Volume of 14g of N_2 is
a) 22.414 dm^3 b) 11.207 dm^3
c) 1.12 dm^3 d) 11207 cm^3

41)Which gas will diffuse more rapidly?
a) CO_2 b) NH_3 c) HCl d) SO_2

42)Law of distribution of velocities was given by:
a) Boltzmann b) Clausius
c) Maxwell d) Graham

43)Which of the following is unit of "b":
a) Nm^4.mol^{-2} b) Nm^4.mol^2 c) m^3.mol^{-1} d) m^2.mol

44)Gases are non-ideal at:
a) High Pressure b) Low temperature
c) Low Pressure d) both a and b

45) State of matter comprising neutral particles, positive ions & electrons is:
a) Plasma b) Liquid c) Solid d) Gas

46) Volume of 1mole of gas at highly compressed state is called……
a) Actual volume b) Free volume
c) Effective volume d) Volume of vessel

47) Gases are ideal at:
a) Low T & high P b) Low T & Low P
c) High T & low P d) High T & high P

48) When a compressed gas is allowed to expand into a region of low pressure it gets cooled is called……
a) Liquefaction of gases b) Avogadro's law c) Joule Thomson Effect d) Wander Waal's hypothesis

49) Temperature is a measure of vibrational kinetic energy for……
a) Plasma state b) Solid state
c) Gas state d) Gas & liquid state

50) Pressure & temperature are kept constant in:
a) Graham's law b) Dalton's law
c) Wander Waal's law d) Charles's law

51) Movement of gas molecules through a small opening into a region of low pressure is……
a) Diffusion b) Effusion
c) Liquefaction d) Partial pressure

52) Dalton's law finds its application in process of:
a) Respiration b) Excretion
c) Digestion d) Transport

53) Individual pressure of gas in a mixture of non-reacting gases is……
a) Ideal pressure of gas b) Observed pressure of gas
c) Lessened pressure if gas d) Partial pressure of gas

54) Feeling uncomfortable breathing in un-pressurized cabins is due to:
(A) High pressure of CO (B) Low Pressure of O_2
C) Fatigue (D) Low pressure of CO_2

55) The density of methane gas at 2 atm pressure at 27C is:
(a) 26g dm^{-3} (b) .26g dm^{-3}
(c) 1.30gdm^{-3} (d) 0.13gdm^{-3}

56) Molar volume of CO_2 is maximum at:
a) NTP b) STP c) 0^0C and 1 atm d) 127 ^{0}C and 1 atm

57) At 10^0C a gas has 1 atm pressure and 10dm^3 volume. Its volume at S.T.P would be:
(a) 10 dm^3 (b) Less than 10 dm^3
(c) More than dm^3 (d) Cannot be predicted

58) Which gas is lighter at 1atm and 298K?
(a) O_2 (b) Cl_2 (c) CO_2 (d) N_2

59) What is the less common state of matter:
(a) Solid (b) Liquid (c) Gas (d) Plasma

60) Formula for the conversion of Fahrenheit into centigrade:
a) C+273 b) 5/9(F-32) c) 9/5C°+32 d) None

61) Formula for the conversion of centigrade into Fahrenheit :
a) C+273 b) 5/9(F-32) c) 9/5C°+32 d) None

62) The critical temperature for ammonia gas is?
(a) less than argon (b) equal to argon
(c) greater than argon (d) not known

63) one dm^3 of O_2 at STP has the mass
(a) 32 g (b) 16 g (c) 4.438 g (d) 1.428 g

64) Pressure remaining constant, at which temperature the volume of a gas will become twice of what it is at 0*C?
(a) 546 *C (b) 200 *C (c) 546 K (d) 273 K

65) What would be the volume of 10 dm^3 of a gas at 0^oC temperature and 2.5 atmospheres pressure when it is decomposed to 2 atmospheres pressure, temperature being the same?
A) 1.25 dm^3 b) 12.5 dm^3 c) 6.3 dm^3
d) 18.dm^3

66) Which of the following is not true for ideal gases?
a) Pressure of gas is due to collision of molecules with walls of container and with each other
b) Random motion of molecules
c) Follow the general gas equation
d) Molecules show elastic collisions

67) Which of the followings is not true for N_2 gas contained in a container at STP?
a) All the molecules have same masses
b) All the molecules possess K.E.
c) All the molecules have same velocities
d) No molecule is stationary

68) Which is not correct for PV/RT ?
a) It is the compressibility factor
b) It is constant for ideal gas at STP for any volume
c) It is a variable for real gases d) None of these

69) Deviation of gases from the ideal behavior does not depend on
a) Molecular volume b) Pressure applied
c) Intermolecular d) None of these

70) Gases cannot be compressed to zero volume because
a) These are incompressible b) These have repulsive forces
c) Their molecules have non-zero volumes d) All of these

71) According to the kinetic molecular theory, the gas molecules increase in K.E when they
a) are melted from solid to a liquid state b) Are mixed with other molecules at lower temperature
c) Are frozen into solid d) Are considered into liquid

72) n mole of an ideal gas at temperature T in kelvin occupy V liters of volume, exerting a pressure of P atmospheres. What is its concentration (in mole/lit)? (R= gas constant).
a) P/RT b) PT/R c) RT/P d) R/PT

73) All of the following statements are false except
a) Gas molecules do not attract each other at very low temperature
b) Actual volume of a gas is not negligible at very high pressure
c) All of the gas cannot be liquefied
d) Increase in pressure will not decrease the intermolecular distance in a gas

74) At the same temperature and pressure helium is more ideal than hydrogen due to
a) Greater molar mass b) Greater molecular size
c) Less molar mass d) Less molecular size

75) A container with a porous wall has mixture of H_2, He, N_2 and O_2. Which of these gases will take maximum time in getting out of the container?
a) H_2 b) He c) N_2 d) O_2

76) At constant volume for a fixed number of moles of gas, the pressure of the gas increases with the rise in temperature due to;
a) Increase in average molecular speed b) Increase in molecular attraction
c) Increase in rate of collisions d) Increase in mean free path

77) An ideal gas expands according to PV= constant. On expansion the temperature of gas
a) will rise b) will remain constant c) Will drop d) Cannot be determined because external pressure is not known

78) At constant temperature and pressure, for equal volumes of O_2 and N_2
a) No. of moles would be same b) No. of atoms would be same
c) No. of atoms would be same d) All of these

79) In a flask of V liters, 0.2 moles of O_2, 0.4 moles of N_2, 0.1 moles of NH_3 and 0.3 moles of He, gases are present at 27°C. If total pressure exerted by these non-reacting gases is 1 atm, the partial pressure exerted by the gases is in order of;
a) N_2>He>O_2>NH_3 b) He>O_2>N_2>NH_3
c) N_2>H_2>NH_3>O_2 d) O_2>N_2>NH_3>He

80) A certain mass of gas occupies a volume of 2 liters at STP. To what temperature the gas must be heated to double its volume keeping the pressure constant?
a) 100K b) 273K c) 273 °C d) 546 °C

81) An unknown gas has a density of 2.45 g/l at 1.5 atmospheric pressure and 25 °C. The gas is
a) Kr b) Cl_2 c) SO_2 **d) Ar**

82) At what centigrade temperature will be volume of gas at 0°C doubles of itself, when pressure remains constant?
a) 546 K b) 273 K c) 273 °C d) 0°C

83) A closed container contains equal number of oxygen and hydrogen molecules at a total pressure of 740 mm. If oxygen is removed from the system then pressure will;
a) Become double of 740 nm b) Become 1/9 of 740 nm **c) Become half of 740 nm** d) Remain unchanged

84) 7.5 grams of gas occupy 5.6 liter of volume at STP. The gas is
a) NO b) N_2O c) CO d) CO_2

85) Four one liter flasks are separately filled with the gases O_2, F_2, CH4 and CO_2 under same conditions. The ratio of the number of molecules in these gases is;
a) 2:2:4:4 b) 1:1:1:1 c) 1:2:3:4 d) 2:2:3:4

86) Containers A and B have same gases. Pressure volume and temperature of A are twice that of B, then the ratio of number of molecules of A and B are
a) 1:2 b) 1:4 **c) 2:1** d) 4:1

87) A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends, the white ammonium chloride ring first formed will be;
a) At the center of the tube b) Near the ammonia bottle
c) Near the hydrogen chloride bottle d) Throughout the length of the tube

88) Under which of the following conditions, Van der Waal's gas approaches ideal behavior?
a) **Extremely low pressure** b) High pressure
c) Low product of PV d) Low temperature

89) Slope of the plot between PV and P at constant temperature is
a) ½ b) 1 c) **Zero** d) $1/V^2$

90) If four tubes of a car are filled to same pressure with N_2, H_2, O_2 and Ne separately, then which will be filled first?
a) O_2 **b) H_2** c) Ne d) N_2

91) At STP which of the following real gases is likely to have smallest molar volume (in m^3)?
a) Oxygen b) Nitrogen **c) Hydrogen** d) Ammonia

92) 6.4g SO_2 at 0°C and 0.99 atm pressure occupies a volume of 2.241 L. Predict which of the following is correct?
a) The gas is real with intermolecular attraction
b) **The gas is ideal**
c) The gas is real without intermolecular attraction
d) The gas is real with intermolecular repulsion greater than intermolecular attraction

93) The total no. of moles of molecules in a mixture formed by intermixing 17g of NH_3 + 32g of O_2 at STP will be
a) 1 mol. b) **2 moles** c) 6 moles d) None of these

94) In a mixture containing 44g each of CO_2, SO_2 and SO_3, which of the gases will have largest partial pressure
a) CO_2 b) SO_2 c) SO_3 d) None of these

95) Molecules of which of following gases would move with slowest speeds in a mixture containing N_2, CO, C_2H_4 and NO?
a) N_2 b) CO **c) NO** d) None of these

96) Which of the following does not have the same densities at STP when they have same volumes?
a) N_2 and CO b) O_2 and C_2H_6 c) CO_2 and C_3H_8 **d) All of these**

97) The relative rates of diffusion of a gas with molecular weight 98 as compared to Hydrogen will be:
a) 1/7 b) 1/5 c) 2/5 d) none

98) Which of the following mixture of gases do not obey Dalton's law of partial pressure?
a) O_2 and CO_2 b) Cl_2 and SO_2 c) N_2 and O_2 **d) NH_3 and HCl**

99) In which of the following pairs, the critical temperature of latter gaseous species is higher than the first?
a) O_2 and CO_2 b) Cl_2 and SO_2 c) N_2 and O_2 d) NH_3 and HCl

100) A and B are ideal gases. The molecular weight of A and B are in ratio1: 4. The pressure of a gas mixture containing equal weights A and B is P atm. What is the partial pressure (in atm) of B in the mixture?
a) P/5 b) P/2 c) P/2.5 d) 3P/4

101) Four rubber tubes are respectively filled with H_2, He, N_2, and O_2. Which tube will be reinflated?
a) H_2 filled tube b) He filled tube c) N_2 filled tube d) O_2 filled tube

102) Which of the following gases will have the highest rate of diffusion?
(a) O_2 (b) CO_2 **(c) NH_3** (d) N_2

103) Original volume of a gas at 0°C is 273cm^3 at constant pressure, its volume at 273°C become:
a) 0 cm^3 **b) 546 cm^3** c) 446 cm^3 d) 346 cm^3

104) The value at which both Centigrade and Fahrenheit scale are same:
a) -10 b) -20 c) -30 **d) -40**

105) Which of the following gases has lowest density?
a) Ne b) N_2 **c) NH_3** d) CO

106) When the unit of pressure is atm and unit of volume is dm^3 than value of R is:
a) 8.3143 b) 1.989 **c) 0.0821** d) 62.4

107) The lowest temperature which is currently achieved:
a) -100°C **b) 10^{-5}K** c) -546 °F d) None

108) Equal volume of Hydrogen and He are enclosed in a vessel the pressure exerted by both gasses are in ratio
a) 1:2 **b) 1:1** c) 2:1 d) 1:4

109) Kinetic molecular theory of gases was put forward by:
a) Boltzman b) Maxwell
c) Clausius **b) Bernoulli**

110) Ionized state of mater is
a) Gas **b) Plasma** c) Liquid d) Solid

111) Oxygen gas contained in a flask at STP was replaced by SO_2 under same conditions. The weight of SO_2 will be
a) Equal to O_2 b) Half of O_2
c) Twice of O_2 d) Three times of O_2

112) Pair of gases which does not obey the Daltons law of partial pressure
(a) H_2 & He b) N_2 & Ne c) H_2 & O_2 **d) NH_3 & HCl**

113) Equal masses of methane and oxygen are mixed in an empty container at 25°C. Fraction of total pressure exerted by oxygen is:
a) 1/3 b) 8/9 c) 1/9 d) 16/17

114) What do we call sudden expansion of plasma?
a) Avogadro's law b) Grahm's law **c) Joule Thomson effect** d) Dalton's law

115) Normal body temperature is:
a) **98.6 °F** b) 97.6 °F c) 98.6°C d) 98.6K

116) At constant temperature the density of a gas becomes double if the pressure is:
a) Half b) **Double** c) Same d) None

117) Plasma was discovered by:
a) **English scientist** b) German scientist |
c) Greek scientist d)Latin scientist

118) The product of PV has S.I unit of:
a) Nm^{-1} b) Nm^{-2} c) m^3 d) **Nm**

119) 1 torr = mmHg
a) 760 b) 101325 c) 14.7 d) **1**

120) Most of the matter around us is in the form of
a) **Solid** b) gas c) liquid d) none

121) Motion possessed by liquids and gases is
a) Vibratory b) translator c) rotatory d) **all of these**

122) The unit pounds per square inch 9psi) of pressure is used by Engineers b) doctors
c) meteorologists d) all of these

123) Isotherm shifts away from the origin when only
a) Volume decreases b) **temperature increases** c) pressure decreases d) all of these

124) If gas has a volume of $500cm^3$ at 0^0C then its volume at 50^0C will be cm^3
a) 550 b) 592 c) 600 d) 450

125) The slope of straight line in Charles law will be greater if of gas is greater
a) mass b) volume at given temperature c) temperature d **both ‗a' and' b'**

126) 1 joule = ?
a) 0.22 cal b) **0.24 cal** c) 0.25 cald) 0.26 cal

127) Mole fraction of any gas in mixture of gases is always
a) 1 b) **less than 1** c) greater than 1 d) none of these

128) The sum of mole fractions of all gases in a mixture is always
a) **1** b) less than 1 c) greater than 1 d) none of these

129) The unit of mole fraction is
a) mole b) $moldm^{-3}$ c) $molkg^{-1}$d) **no unit**

130) The pressure of CO_2 in lungs is than in air
a) **Greater** b) lesser c) equal d) none of these

131) Which has the greatest rate of diffusion of the following?
a) 0.997 gdm^3 of steam b) **1.097 gdm^3 of H_2** c) 0.897 gdm^3 of O_2 d) None

132) Which has same rate of diffusion as that of N_2 gas?
a) CO_2 b) H_2 c) O_2 d) **CO**

133) Kinetic equation was derived by
a) Boltzmann b) **Clausius** c) Maxwell d) Bernoulli

134) The collisions among gas molecules are
a) **elastic** b) non-elastic c) both 'a' and 'b' d) none of these

135) Temperature is the measure of average vibrational kinetic energy of molecules in
a) **solids** b) liquids c) gases d) none of these

136) Which gas cannot be liquefied by LINDE's method of liquefaction?
a) hydrogen gas b) helium gas c) **both hydrogen and helium gases** d) none of these

137) Conversion of gas into liquid requires
a) High P b) low T c) **both ‗a' and ‗b'** d) none of these

138) Critical temperature of gas depends upon
b) Size of molecules b) shape of molecules c) intermolecular forces **d) all of these**

139) The value of ‗a' is the greatest for
a) NH_3 b) H_2O c) HF d) none of these

140) The value of ‗b' is the greatest for
a) O_2 b) SO_2 c) SO_3 d) CO_2

141) More the percent of the universe is composed of plasma
a) 80 b) 70 c) 95 d) **99**

142) The sun is million kilometer ball of plasma
a) 1 b) **1.5** c) 2 d) 2.5

143) To liquefy the air, the pressure should be about in LINDE's method of liquefaction
a) 100 atmb) 150 atm c) **200 atm** d) 250 atm

144) Which statement is not true for ideal gas
a) Has no attractive forces b) obeys gas laws
c) **can be converted into liquid** d) none of these

145) To liquefy the air,the pressure should be about in LINDE's method of liquefaction
a) 100 atm b) 150 atm c) **200 atm** d) 250 atm

146) The value of R depends upon
a) unit of P b) unit of V
c) **both a and b** d) None of these

147) Which is unattainable temperature
a) 50K b) **0K** c) 10K d) all of these