KINGDOM OF SAUDI ARABIA
المملكة العربية السعودية
JAZAN UNIVERSITY
جامعـــة
جازانFaculty of Engineering
كلية الهندسةDepartment of Chemical Engineering

CHE 111 Physical Chemistry	**Mid-Term - 3**
Name : _____	**Total Marks-15**
I.D. No. _____	**Time : 50 minutes**
Date: 07/04/2019 (01/08/1440 H)	**Examiner: Lecturer- Mohammed Imran**

Qn. No.1 (a) Fill in the blanks- **(Marks 2.5)**

a) If two solutions of identical osmotic pressure are separated by a semi-permeable membrane, no …….. will occur.

b) The vapor pressure of all volatile solvents with a solute is less than that of the pure solvent. This is called …….

c) Two dissimilar substances that can not form ideal solutions. Examples are ……..and ……

d) …… is the no. of gram –equivalent of solute per litre of the solution.

e) ……. is a homogeneous mixture of two or more components

Qn. No.1 (b)Answer the following- **(Marks 2.5)**

(a) Define molarity.

(b) Define molality.

(c) State the Raoult's law.

(d) What is osmotic pressure?

(e) What are the colligative properties? Write the name only.

Qn. No.2 How many types of solutions are possible. Write the name with example.
(Marks 2.5)

Qn. No.2 (b) Calculate the freezing point and the boiling point of a solution of 100 g of ethylene glycol ($C_2H_6O_2$) in 900 g of H_2O. Given that ΔH_{fus}= 1436.42 cal/mole and ΔH_{vap}= 9530 cal/mole. **(Marks 2.5)**

Qn. No.3: (a) The osmotic pressure of 0.2 g of hemoglobin in 20 mL of solution is 2.88 mm Hg at 25°C. Calculate the molecular weight of hemoglobin **(Max. Marks 2)**

Qn. No.3: (b). Assuming ethanol, (C_2H_5OH), and iso-propanol, (C_3H_7OH) form an ideal solution. Estimate the total vapor pressure and the composition of vapor at 30°C above a solution composed of 30.57 cm^3 of ethanol and 75 cm^3 iso-propanol, if the following data for ethanol and iso-propanol are given at 30°C.

Compound	Density,(gm/cm_3)	Vapor pressure, (torr.)
C_2H_5OH	0.79	79.10
iso- C_3H_7OH	0.78	30.00

(Marks 3)