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Education and Technology Team
Ethio-Parents' Schools: Addis Ababa (Gerji/Gullele) and Hawassa.
Chemistry centralized lesson guideline for home study

This guideline is designed to help and facilitate students' independent -learning in their stay at home because of state of emergency. Thus, students are expected to follow and apply it strictly in their independent- study.

Date: April 20-24, 2020 **Unit:** Five **Topic:** CHEMICAL EQUILIBRIUM

We all must prevent and treat ourselves and our community from corona virus, COVID – 19, and stop its spread by following the instruction of the WHO and/or the Ethiopian Health Minister.				
Grade 11	**Lesson 1 (April 21, 2020)**	**Lesson 2 (April 22, 2020)**	**Lesson 3 (April 23, 2020)**	**Lesson 4 (April 24, 2020)**
Subtopics to be covered	5.1.4 ***Changing Equilibrium Conditions*** ☑ *Factors affecting the equilibrium constant* ☑ *Le chatelier's Principle* *1. Effect of change in temperature on the position of equilibrium* ☞ *Sample problems*	5.1.4 ***Changing Equilibrium Conditions*** *2. Effect of change in pressure and concentration on the position of equilibrium* ☞ *Sample problems*	*3.* ***Effect of catalyst and Inert gases on the position of equilibrium*** ☑ *Optimum Conditions* ☞ *Haber process* ☞ *Contact process*	5.2 ***Phase equilibrium*** 5.2.1 ***Force of attractions, kinetic energy and states of matter*** 5.2.2 ***Common terms*** ☑ *Phase, Component , degree of freedom, Phase equilibrium*
Objectives	***At the end of covering the above lessons, you will be able to:***			
	✓ *List factors that affect equilibrium constant* ✓ *State Le-chatliers principle and use the principle to explain the effect of changes in temperature on the position of equilibrium*	✓ *State Le-chatliers principle and use the principle to explain the effect of changes in pressure and concentration on the position of equilibrium* •	✓ *Explain the effect of a catalyst and inert gases on the position of equilibrium* ✓ *Explain how Le-chatliers principle is applied to Haber and Contact process process for manufacturing ammonia and sulfuric acid*	✓*Explain the interplay between kinetic and potential energy that underlies the properties of the three states of matter and their phase changes* ✓*Define terms like Phase, Component and degree of freedom*
Text Page range	**282-285**	**286-**	286-296	**297-300**
Evaluation	**Activity 5.8**	Activity 5.8	Exercise 5.7	**Activity 5.10** **Exercise 5.8**

Grade 11	Lesson 5 (April 27, 2020)	Lesson 6 (April 28, 2020)	Lesson 7 (April 29, 2020)	Lesson 8 (May 1, 2020)
Subtopics to be covered	5.2 ***Phase equilibrium*** 5.2.3 ***Phase Rule*** ☑ *Phase rule equation* ☑ *Bivariant, monovariant, invariant systems*	5.2 ***Phase equilibrium*** 5.2.4 ***Temperature, pressure and phase changes of pure substances*** ☑ *Changes involved during heating of the pure substance* ☑ *Vapour pressure and boiling point*	5.2 ***Phase equilibrium*** 5.2.5 ***Phase diagram*** ☑ *Phase diagram for one component system* ☑ *Characteristics of a phase diagram for pure Substance* ☑ *Application of phase diagram*	*Review exercise*
Objectives	✓ *Calculate the degree of freedom for various values of phases (1-4) using the phase rule equation* $F = C - P + 2$	✓ *Explain the process involved, both within a phase and through a phase change when heat is added or removed from a pure substance* ✓ *Explain the meaning of vapor pressure and how phase changes are dynamic equilibrium processes* ✓ *Explain the relation between vapor pressure and boiling point*	✓ *Describe how a phase diagram shows a phase of a substance at differing conditions of pressure and temperature* ✓ *Use a phase diagram, determine melting point, boiling point, critical temperature, critical pressure and triple point of a substanceuses of Phosphorous*	✓
Text Page range	**300-302**	**302-303**	303-307	**311-314**
Evaluation		**Exercise 5.9**	Exercise 5.10	**Centralized self-test**

Note:

- ☑ You are highly recommended to use centralized note uploaded on EPS telegram channel along with your text book.
- ☑ You are kindly requested to use the learning outcomes check list at the end of each unit in your text book. This will help you to evaluate yourself whether you achieved the minimum learning competencies or not.