DEPARTMENT OF CHEMISTRY

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SECOND SEMESTER EXAMINATION 2018/2019 ACADEMIC SESSION

COURSE CODE: CHM524 COURSE UNIT: 3

COURSE TITLE: SELECTED TOPICS IN INDUSTRIAL CHEMISTRY

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS TIME: 2 HOURS

Q1a. Starting with aniline, outline the various steps involved in the preparation of aniline yellow dye. (4 Marks)

b. Explain the following.

i. Pigmented dyes ii. Nanomaterials iii. Biomaterials (6 Marks)

c. Discuss the extractive metallurgical process. (3 Marks)

d. Briefly explain soft and hard soap. (2 Marks)

Q2a. Using equation only, give the products of;

i. Oxidation of glucose by the action of dilute trioxonitrate (V) acid (2 marks)

ii. Hydrolysis of; i. Sucrose ii. Maltose (2 marks each)

b. Explain the term "lipid oxidation" (4 marks)

c. Give the mechanism of oxidative rancidity of food containing lipids (6 marks)

d. Using qualitative method, describe how the following pair of compounds can be distinguished.

i. Maltose and Sucrose ii. Glucose and Fructose (2 marks each)

Q3a. Discuss the process of dye application on fabric (7 Marks)

b. Write short notes on the following.

(i) Metal alloys (ii) Semiconductors (5 Marks)

c. Give the structures of methyl orange and methyl red. (2 Marks)

d. Write the general equation for saponification process using sodium hydroxide as an alkali (1 mark)

Q4a. State the significance of the analysis of the following in foods

i. Acid value ii. Peroxide value iii. Saponification Value iv. Iodine value (6 marks)

b. Distinguish between red and white meat and briefly discuss the nutritional and health implications of consuming red meat. (5 marks)

c. Explain the biochemical reactions that occur in the slaughtering of live animal and give the importance of these reactions (5 marks).

d. What is nutritional labeling and gives its importance in the food processing industry

(5 marks)