



OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA
DEPARTMENT OF CHEMISTRY

B.Sc., Degree (Industrial Chemistry) Examination
Part I Rain Semester 2021/2022

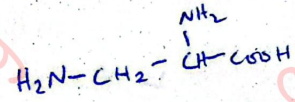
ICH 102: INTRODUCTION TO INDUSTRIAL CHEMISTRY

DATE: June 2023

TIME ALLOWED: 2 hours

INSTRUCTIONS:

- ✓ Answer all questions
- ✓ Write your names in full (in block-letters) with your surname underlined on the cover page of your answer script.
- ✓ Write your University Registration Number on the cover page of your answer script.
- ✓ Append your signature on the top right-hand space on the cover page of your answer script.
- ✓ Write the course code and the course title on the cover page of your answer script.
- ✓ Read the **DIRECTIONS TO CANDIDATES** on the cover page of your answer script.



- 1/
- (a) What is drug according to World Health Organization's concept? **2 marks**
- (b) Mention and briefly explain the nomenclatures of drugs you were taught. **8 marks**
- (c) Briefly explain the classes/groups of drugs you were taught. **8 marks**
- (d) What are dyes? **2 marks**
- 2/
- (a) Define the following terminologies; (i) Chromophore (ii) Auxochrome (iii) Bathochromic group (iv) Hypsochromic group. **4 marks**
- (b) Copy and fill the table below; **5 marks**

*pharmacological effect
chemical structure
Target system
Site of action*

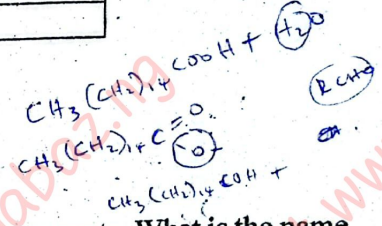
*intra name
proprietary/brand/trade
common/generic/official*

Wavelength (nm)	Colour absorbed	Visible (complementary) colour
400 - 435	Violet	Yellow green
435 - 480	Blue	Yellow
480 - 490	Green-blue	orange
490 - 500	Blue-green	Red
500 - 560	Green	Purple
560 - 580	Yellow green	Violet
580 - 595	Yellow	Blue
595 - 605	Orange	Green blue
605 - 750	Red	Blue-green

*YB - R, G
CR - G, B
MG - R, B*

*R-C=O
OR
RCOOR
Acid anhydride*

- (c) Briefly explain why objects possess a particular color. **4 marks**
- (d) Differentiate between a dye and a pigment. **2 marks**



- 3.
- (a) Discuss with chemical equation, the preparation of soap using fat and other reagents. What is the name given to the reaction? *saponification rxn*
- (b) Write the structure and classify the fatty acids depicted with the notations
- (i) $\text{C}_{18:0}$ (ii) $\text{C}_{22:5} \Delta^{5,8,11,14,17}$
- (c) Write the structure of triacylglyceride formed by compound depicted in b (ii) above and write the equation for chemical reaction that will convert the structure written to margarine
- (d) What are the implications of consuming oils rich in b(i) on human health



(e) List two natural and one synthetic compound that could prevent oxidation of fats and oils

4. (a) Write the structure of a named amino acid which is

(i) Neutral (ii) Basic (iii) Acidic (iv) Sulphur containing (v) Aromatic

(b) Show how peptide bond is formed between any two of the amino acids named in 2(a) above.

(c) List the types of chemical interactions found in tertiary structure of proteins

(d) Discuss protein denaturation and protein digestion - breaking down of food molecules

(e) Explain the implication of protein deficiency on human health and state how the problem can be overcome

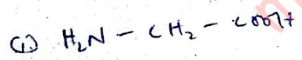
5. (a) Why is consumption of carbohydrate food important? What are the disadvantages of consuming excess carbohydrate foods?

(b) Explain why cellulose is said to have no food value

(c) Discuss methods employed in the modification of starches - Physical modification, Degradation, Annealing, Chemical modification, Oxidation, Cross-linking

(d) Explain gelatinization of starch

Starch granules are insoluble in cold water. If then suspend in H₂O, they absorb little amount of water and when heated to about a more relative amount of water up to a temperature called the initial gelatinization temperature, in this part they begin to swell (the granules) and this is reversible. In this phase they become fully swollen and irreversible. Further heating until a starch paste is formed and the formation of a gel is called gelation.



(2)

