



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Nnamdi Azikiwe Expressway, Plot 91, Cadastral Zone, Jabi, Abuja
FACULTY OF SCIENCE

OCTOBER/ NOVEMBER 2016 EXAMINATION

COURSE CODE: CHM 312

COURSE TITLE: Industrial Chemical Processes I

COURSE UNIT: 2 units

TIME: 2 hours

INSTRUCTION: Answer *Question 1* and *any other three (3) questions*

Q1.

- a) List and explain five characteristics of explosives (5marks)
- b) i. Outline the 2 (two) bases for classification of explosives (2 marks)
- ii. What is a flavouring agent? (1 ½ mark)
- iii. State the two major types of flavouring agent (2 marks)
- c) With the aid of chemical equation, discuss the synthesis of vanillin from petrochemical raw materia guaiacol.
(7 marks)

Q2.

- a) Define the term pesticide and give two examples (2 marks)
- b) State the functions of chromophore and auxochrome as relate dyeing process (2 marks)
- c) Describe the classification of dyes according to dyeing process (13 ½ marks)

Q3

- a) State any six applications of Styrene Butadiene Rubber (SBR) (6 marks)
- b) Write the structural formula styrene butadiene rubber (3 ½ marks)
- c) Outline four(4) uses of polyethylene (4 ½ marks)
- d) Draw the chemical structure of sulfoxazole (3 ½ marks)

Q4

- a) Give 5 examples of natural polymers (2 ½ marks)
- b) List and explain the various classes of polymers (10 marks)

- c) State five applications of polymers. Give specific examples (5 marks)

Q5

- a) Write short notes on each of the following wine making process.

i) Crushing grapes (3 marks)

ii) Fermentation of Must (4 marks)

iii) Ageing the wine (2 marks)

b) Describe the industrial production of penicillin (7 marks)

c) Write the chemical structure of penicillin (1 ½ marks)

Q6.

a) Define the term fermentation (1 ½ mark)

b) State any four (4) differences between microbial and enzymatic fermentation (4 marks)

c) Explain the manufacturing process of Beer (12 marks)