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**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**University Village, NnamdiAzikiwe Expressway, Plot 91, Cadastral Zone, Jabi, Abuja**

**FACULTY OF SCIENCE**

**JANUARY/FEBRUARY 2018 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***

Question1

a) List four classes of synthetic adhesives. (4 marks)

(b) State ten uses of adhesives. (10 marks)

(c) Define the term ‘’explosives’’ and state two broad categories of commercial explosives (4 marks)

(d) State the functions of chromophore and auxochrome in dyeing process. ( 2 marks)

(e) Outline the three separate steps/activities involved in the production process of pesticides. (3 marks)

(f) Explain what is meant by thermoset polymer. (2 marks)

**Question 2**

What are adhesives and how are they manufactured?(15marks)

**Question 3**

a) Describe nitrocellulose and TNT production processes. (9 marks)

b)List the applications of explosives. (6marks)

**Question 4**

a) Describe the production of benzaldehyde as a flavoring agent. (7 marks)

b) What are antibiotics? Give five examples. (4 marks)

c) Briefly describe the production process ofIbuprofen. (4 marks)

**Question 5**

**a)** Explain in very clear terms the production process of dyes. (7 ½ marks)

b) Write the chemical structure of Styrene butadiene rubber (SBR) (2 ½ marks)

c) State any five Applications of Styrene Butadiene Rubber. (5 marks)