



CRAWFORD UNIVERSITY
COLLEGE OF NATURAL AND APPLIED SCIENCE
DEPARTMENT OF PHYSICAL SCIENCES, INDUSTRIAL CHEMISTRY
RAIN SEMESTER EXAMINATION 2020/2021 SESSION

COURSE CODE: ICH 440

UNITS: 2

COURSE TITLE: ENVIRONMENTAL CHEMISTRY II

TIME ALLOWED: 2 HOURS

Instructions: answer 4 Question only

1. A) "The dispersion of air pollutants mainly depends on physical processes in air" explain. (5 marks)
B) Relate the effectiveness of purification installations to air pollutants. (5 marks)
C) Explain how sulphurdioxide can be purified during the preparation of sulphuric acid. (5 marks)
2. A) What is air pollution metrology? Explain how air flow can be measured and recorded (4 marks)
B) Explain the four strokes that can be repeated to generate the crankshaft revolution in a car. (8 marks)
C) Identify three benefits of purification of waste gases. (3 marks)
3. A) What is lapse rate? Describe two types of smokestack plumes that can be released into an unstable environment. (7 marks)
B) With quality reasons, suggest an alternative to Otto cycle engine. Tell why this engine could not achieve a wide usage rate. (4marks)
C) "Air pollutants can widely be classified into two according to the manner in which they react with the atmosphere" Explain. (4marks)
4. A) Describe how topography affects the transportation and dispersion of air pollution. (3marks)
B) Explain the three common control technologies of acid gases (9marks).
C) Describe the miller cycle engine. (3marks)
5. A) Explain how the interaction of natural and manmade pollutants and the atmosphere at various distances on the ground level can be estimated. (3marks)
B) Vehicle exhaust contains gases formed from the combustion of fuel, explain two methods that can be used to purify these gases and state the effect of these gases if not purified. (6marks)
C) Mention six major processes that can be used for air purification. (6marks)
6. A) Explain the three categorized methods of purification of gases. (9marks)

- B) Describe how sulphuric oxide can be purified using mechanical method and physicochemical method.(4marks)
- C) State the difference between the two methods described above.(2marks)

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