



NATIONAL OPEN UNIVERSITY OF NIGERIA

Plot 91 Cadastral Zone, Nnamdi Azikwe Express Way, Jabi, Abuja.

DEPARTMENT OF SCIENCE EDUCATION

EXAMINATION: 2021_1

COURSE CODE: SED835

COURSE TITLE: LABORATORY DESIGN AND MANAGEMENT

CREDIT UNIT: 3

TIME ALLOWED: 3 HOURS

INSTRUCTION: ANSWER QUESTION ONE AND ANY OTHER THREE

- 1ai. What is laboratory safety? **(3Marks)**
- ii. Outline the safety measures to take as a science teacher in charge of the school laboratory **(5Marks)**
- b. With respect to the three main educational domains, how have you been assessing your students' practical in the laboratory? **(3Marks)**
- c. Science has changed over the past years and so laboratories must change! As a Science teacher, what can you suggest to school authority to change school laboratory design and organization? **(4Marks)**
- di. As you work in the biology laboratory what are the causes of the common danger encountered? **(4Marks)**
- ii. Do you have a fume cupboard in your school? Describe how it is supposed to be. **(6Marks)**
- 2ai. What is pipette? **(3Marks)**
- ii. Mention any four precautionary measures you will take when using pipette **(5Marks)**
- bi. You have just been assigned to teach JS1 Basic Science and Technology in your school. How would you describe what a laboratory is to your students? **(3Marks)**
- ii. Sketch and explain how the materials distributed from the main store to bulk and work stores. **(4Marks)**
- 3a. Write half a page on the historical background of the school laboratory.
From your study of history years back, which do you think came first the laboratory or the equipments? Give a reason for your answer. **(4Marks)**
- b. The principal of your school has just informed you about a new site in the compound to build a 'T' shaped science laboratory. Write a proposal on the factors to be considered for this project to guide your principal. **(4Marks)**

- c. Many materials deteriorate if stored under wrong conditions. List the conditions and explain maintenance instruction to avoid deterioration **(7Marks)**
- 4a. As a science teacher, since the outdoor laboratory would have been less expensive with lots of space for student-teacher interaction, then why the emphasis on having a building? **(6Marks)**
- b. State three (3) considerations that would guide the location of a Science Laboratory in a building. **(9Marks)**
- 5a. Distinguish between “Common apparatus” and “Complex equipment” in science laboratory. **(10Marks)**
- b. One of your chemistry students has just collected burette, pipette and conical flask from the laboratory attendant for her titration. She held the apparatus horizontally and was walking hurriedly back to her desk. Another student clashed with her. What do you think would have happened? **(5Marks)**