



NATIONAL OPEN UNIVERSITY OF NIGERIA

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

FACULTY OF EDUCATION

2020_1 Semester

COURSE CODE: SED835
COURSE TITLE: LABORATORY DESIGN AND MANAGEMENT
CREDIT UNIT: 3
TIME ALLOWED: 3 HOURS
INSTRUCTION: Answer Question One and any Other Three

- 1a. Power laboratory is to science teacher as kitchen is to a woman. Discuss. **(12 marks)**
 - b. Who are the major human resources managing science laboratory? **(3 marks)**
 - c. Explain briefly why a science teacher should not be allowed to teach out of his own area of specialization. **(5 marks)**
 - d. Explain five (5) procedures you should take as a teacher in any emergency case in your laboratory. **(5 marks)**
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- 2ai. Your students are performing titration experiment in chemistry laboratory using burette. Mention any four (4) precautionary measures you will tell the students when using burette. **(4 marks)**
 - ii. Why should a teacher try an experiment before the students attempt it? **(2 marks)**
 - bi. Preparatory room is an important part of laboratory. Discuss the uses of preparatory room **(3 marks)**
 - ii. Give reasons for not storing sodium in water. **(2 marks)**
 - ci. In your own opinion, outline basic steps required in research report writing in science education **(2 marks)**
 - ii. Discuss briefly two of the ways you have stated in c(i). **(2 marks)**
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- 3ai. Why should a schools' science laboratory be well ventilated? **(5 marks)**
 - ii. If your student inhaled chemical and breathing became difficult for him. What would you do to help? **(3 marks)**
 - b. With suitable sketches describe three shapes of school science laboratory **(4 marks)**
 - c. After siting a place and choosing the shape for the laboratory. What are the factors to be considered in building the laboratory? **(3 marks)**

- 4a. State the guidelines for laboratory safety to the following categories of people and situation:
- Students
 - Teachers
 - Handling chemicals.
- b. Explain any two of these extinguishers:
- Powder extinguishers
 - Fire blanket and sand bucket
 - Carbon dioxide extinguishers
- ci. Differentiate between the fixed and flexible laboratory designs
- ii. You have just been promoted as head of science in your school. In the school, the principal was asked to submit proposal for a science laboratory design without fume cupboard and a store. As an expert show how you can convince the authority the need for fume cupboard in a standard science laboratory in a school. **(Total = 15 marks)**
- 5a. Your school authority proposal for a new science laboratory has just been accepted by TETFUND. Where would you as a science teacher want the science laboratory to be sited?
- b. Why do you think some of your students prefer the science practical lessons in the laboratory?
- ii. You have accidentally broken a test tube and spilled a chemical on the table. What would you do? **(Total = 15 marks)**