



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
Plot 91 Cadastral Zone, Nnamdi Azikwe Express Way, Jabi, Abuja.  
**FACULTY OF EDUCATION**  
**2020\_1 Semester**

**COURSE CODE: SED811**  
**COURSE TITLE: FOUNDATIONS OF SCIENCE EDUCATION**  
**CREDIT UNIT: 3**  
**TIME ALLOWED: 3 HOURS**  
**INSTRUCTION: Answer Question One and any Other Three**

1a. Many scientists have provided different definitions of science with emphasis on creating a new meaning, briefly examine the definition of science according to four (4) selected scientists listed below? **4MARKS**

- i. Uduigwomen (1992).
- ii. Conant (1951).
- iii. Brandwein (1958)
- iv. Otuka (1983)
- v. Squire (1976)

b. Cleminson (1990) and others have advanced new basic tenets claiming that they could be used as foundation in the study of science. Outline these five (5) basic foundation tenets in the study of science education. **10MARKS**

c. Newton was a realist and proposes four facts on Force as a quantity that has magnitude and direction. Justify the four (4) Newton's propositions. **8 MARKS**

d. Various disciplines and professions have their attributes, what are the two (2) major attributes of science by which it can be defined? **3 MARK**

2a. Scientific knowledge are of various types, briefly describe Declarative Knowledge as a scientific knowledge **4 MARKS**

(b) Examine the two(2) scholars that advocated for inquiring learning? **2MARKS**

(c) Examine Generalization as a scientific knowledge **4 MARKS**

(d.) Identify by listing and explain the other two forms of scientific knowledge apart from Declarative and Generalization. **5 MARKS**

3a. Creative individuals vary in motivational, intellectual and personality traits, what are the ten (10) characteristics that individuals with creative potentials can most easily be recognized by. **10MARKS**

b. Explain in details five (5) features of Scientific Skills in relation to the African child. **5 MARKS**

4. With reference to Rutherford and Ahlgren (1990), discuss convincingly the five (5) justifications of Scientific Method in science education. **15 MARKS**

5a. Using Mendel laws, Kepler's Orbit of Mars and Francis Bacon Hypothetical Deductive method as examples from history of science explain scientific theory of reasoning. **8MARKS**

b. Provide seven (7) vivid explanations of Metaphysics from the science education point of view **7 MARKS**