CANDIDATE'S INDEX NUMBER:

SIGNATURE:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

FOUR-SEMESTER BACHELOR OF EDUCATION PROGRAMME
THIRD YEAR, END-OF-FIRST SEMESTER EXAMINATION, APRIL, 2021

APRIL 7, 2021   PEDAGOGICAL CONTENT   2:30 PM – 4:00 PM
                     KNOWLEDGE IN MATHEMATICS

SECTION B

Answer any THREE questions from this section.

1. a. Explain how you would guide high school students to find the **mean** of the test scores displayed in the frequency table below.   **[10 marks]**

Score	8	9	10	12	15	16
Frequency	4	2	5	10	4	5

   b.   i.   Explain the **two** types of mathematical knowledge illustrating each type with a suitable example.   **[8 marks]**

       ii.   Indicate **one** benefit students derive from gaining each type of knowledge.   **[2 marks]**

2. a. Explain **three** definitions of pedagogical content knowledge in mathematics. **[6 marks]**

   b. Identify and explain the **six** main sequential steps you would take high school students through to find the standard deviation of the following set of data:
     11, 12, 13, 14, 14, 14, 15, 16, 17.   **[14 marks]**

3. a. Explain in sequence, how you would employ *Think-Pair-Share* strategy to solve the following problem with a high school class:
     Find two natural numbers that differ by 17 but sum up to 55.   **[10 marks]**

   b.   i.   Define the term *problem solving* in mathematics.   **[2 marks]**
       ii.   Explain **four** values of teaching mathematics through problem solving.   **[8 marks]**

4. a. Explain **four** teacher practices that are helpful in reducing students' mathematics anxiety.   **[8 marks]**

   b. Explain how you would use algebra tiles to guide high school students to factorize the expression, $x^2 + 5x + 6$.   **[12 marks]**