Candidate's Index Number

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

FIVE-SEMESTER BACHELOR OF EDUCATION (SANDWICH) PROGRAMME
LEVEL 400, END-OF-FIRST SEMESTER EXAMINATIONS, JANUARY 2022

10TH JANUARY 2023	TEACHING PROBLEM-SOLVING IN MATHEMATICS	9:30 AM - 11:00 AM

SECTION B
(60 MARKS)

Answer any TWO questions from this Section.
Please, note that if you answer more than two questions, only the first two will be marked.

1.
a. With an illustrative example of a task in each case, explain what is meant by teaching
   i. *for* Problem Solving   [5 marks]
   ii. *about* Problem Solving   [5 marks]
   iii. *through* Problem Solving   [5 marks]

b. The head of a snake is $\frac{1}{3}$ as long as its body. The tail of the snake is as long as its head and its body combined. The total length of the snake is 56cm. How long is each part of the snake?   [15 marks]

2.
a. One-fourth of a herd of camels was seen in the desert. Twice the square root of that herd had gone to the mountain slopes. After this,15 camels still remained at a riverbank located in the desert. What is the numerical measure of that herd of camels?   [15 marks]

b. Prove by mathematical induction that $1 + 4 + 7 + \cdots + (3n - 2) = \frac{n(3n-2)}{2}$ [15 marks]

3. With **two** likely agendas for the mathematics teacher in each phase, explain the three-part lesson format as proposed by Van de Walle. [30 marks]

4.

  a.

    i.   A three-volume set of classic puzzles sits on a bookshelf in the usual order The front and back covers of all three volumes are 1/8 cm thick each. The pages in each volume are 2 cm thick. How far does a bookworm travel when it eats from the first page of Volume I to the very last page of Volume III? [10 marks]

    ii. Outline **five** roles of the mathematics teacher in teaching through problem-solving. [5 marks]

  b. One-fourth of a herd of camels was seen in the desert. Twice the square root of that herd had gone to the mountain slopes. After this,15 camels still remained at a riverbank located in the desert. What is the numerical measure of that herd of camels? [15 marks]