BACHELOR OF COMPUTING WITH EDUCATION

DISTANCE EDUCATION

SMS 2042 COMPUTER SCIENCE TEACHING METHIODS I

SEMESTER TEST

23 OCTOBER 2023

INSTRUCTIONS:

1. Section A: This section is compulsory and ALL questions must be attempted.
2. Section B: Attempt Any TWO questions only out of the four questions provided.
3. Time allowed: THREE (3) hours plus FIVE (5) minutes to read through the examination paper.
4. Total Marks: 100
5. Candidates must not turn this page until the invigilator tells them to do so.

SECTION A – COMPULSORY QUESTIONS

INSTRUCTIONS: Section A <u>must</u> be attempted by all candidates and is based on the Case Study provided below.

QUESTION 1.

Understanding how students learn can help us develop teaching methods that lead to improvements in students' learning. If our goal is to help our students develop an understanding of science concepts and the scientific enterprise, we need to facilitate students' active involvement in their own learning. *Reflect on your own teaching and think about these questions:*

(i). **What is meant by "active?"**

[4 marks]

(ii) How can science inquiry provide a model of effective teaching?

[8 marks]

(iii) What are the basic elements of active teaching and active learning?

[8 marks]

[Total 20 marks]

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QUESTION 2.

Using creative and innovative examples, discuss how you would use **any two** of the following active learning based teaching methods to ensure effective teaching and learning of Computer Science students.

- Problem Based Learning
- Discovery Learning
- Cooperative Learning
- Discovery Learning

[20 marks]

[Total marks for Section A : 40 marks]

SECTION B – ANSWER ANY TWO (2) QUESTIONS

QUESTION 3:

Learning to teach can be conceptualized around four main ideas—learning to **think** like a teacher, learning to **know** like a teacher, learning to **feel** like a teacher, and learning to **act** like a teacher. These knowledge systems are developed with a comprehensive understanding of the subject matter to be taught as well as ways of teaching that subject matter, that is, pedagogical content knowledge. Teachers with in-depth pedagogical content knowledge understand ways of representing and formulating the subject matter—using powerful analogies, illustrations, examples, explanations, demonstrations, and so forth—to make it understandable to students. These teachers also know which topics students find easy or difficult to learn, which ideas (often misconceptions) students bring with them to the classroom, and how to transform those misconceptions. In addition, teachers understand how students develop and learn as well as how to teach diverse learners.

From your own experience as a teacher or prospective teacher discuss ways that you may use or may have used to demonstrate your ability to learning to think like a teacher, learning to know like a teacher, learning to feel like a teacher, and learning to act like a teacher. Your discussion should cover all aspects of your teaching including teaching methods, illustrations and strategies, etc.

[20 marks]

QUESTION 4

1. Briefly discuss the role of each of the following study areas in making you an effective Computer science teacher: **Sociology of Education, Psychology of Education, Measurement, Assessment** and **Evaluation?**

[20 marks]

QUESTION 5

Using your understanding of the concept of a model, identify five (5) key principles in the Zambian Computer Science Syllabus for Secondary Schools that you can teach using models. Give reasons as to why you think that this approach would be useful to transmit knowledge and understanding of Computer Science

[20 marks]

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[Total marks for Section B: 40 marks]

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END OF TEST PAPER – COMPUTER SCIENCE TEACHING METHODS 1 2023