UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER / DECEMBER
SUPPLEMENTARY EXAMINATION 2014

PROGRAMME: B Ed (Hons) SCIENCE EDUCATION (BED047)
MODULE: CURRENT ISSUES IN SCIENCE EDUCATION
CODE: CIS0027
TIME: 3 hours
MARKS: 100
EXAMINERS: Prof J de Beer
Prof U Ramnarain
MODERATOR: Dr N Petersen (NWU – POTCHEFSTROOM UNIVERSITY)

(This paper consists of 3 pages)

INSTRUCTIONS

You need to answer any **THREE (3) questions**. The question that you answer best, will count 34 marks, and the other two questions each 33. The following rubric will be used in guiding our assessment of your answers:

Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
Introduction	-weak introduction of topic -thesis is weak and lacks an arguable position	-adequate introduction that states topic , thesis and some of the subtopics - thesis is somewhat clear and arguable	-proficient introduction that states background information, controversial question, topic, thesis, and all subtopics in proper order - thesis is a clear and arguable statement of position	-exceptional introduction that grabs interest of reader and states background information, controversial question, topic, thesis, and all subtopics in proper order - thesis is exceptionally clear, arguable, well developed, and a definitive statement
Quality of Information / Evidence	-limited information on topic or inaccurate information	Some accurate evidence but still inadequate	Detailed information with accurate & critical evidence	extremely detailed and accurate with critical evidence from a variety of sources
Support of Ideas / Analysis	-limited connections made between evidence, arguments and counter-arguments -lack of analysis	-some connections made between evidence, arguments and counter-arguments -showing analysis	-consistent connections made between evidence, arguments and counter-arguments -showing good analysis	-exceptionally critical, relevant and consistent connections made between evidence, arguments and counter-arguments -showing excellent analysis
Organization / Development of Ideas	-paper lacks clear and logical development of ideas with weak transition b/w ideas and paragraphs	-somewhat clear and logical development of subtopics with adequate transitions b/w paragraphs	-clear and logical subtopic order that supports thesis with good transitions b/w paragraphs	-exceptionally clear, logical, mature, and thorough development of subtopics that support thesis with excellent transition b/w paragraphs
Conclusion	-lack of summary of topic, with weak concluding ideas	-adequate summary of topic, with some final concluding ideas	-good summary of topic, with clear concluding ideas	-excellent summary of topic (with no new information), in proper order with concluding ideas that leave an impact on reader
Language Conventions	- inconsistent grammar, spelling and paragraphing throughout paper	-paper has some errors in grammar, spelling and paragraphing	-paper is clear, with mostly proper grammar, spelling and paragraphing	-paper is very concise, clear, with consistently proper grammar, spelling and paragraphing

Answer any THREE (3) questions. Your essays should provide evidence of critical thinking, and provide as many examples and references to relevant research as possible. Each essay should be 4 to 5 pages long.

QUESTION 1

Critically reflect on the inclusion of indigenous knowledge (IK) in the school science curriculum. Address the following in your answer:

- What is meant by IK?
- Are IK and so-called ‘western science’ in conflict?
- Why should IK be included in science education?
- Defend the inclusion of IK in the curriculum by referring to the learning theories discussed in this module
- Give practical examples from the Natural-, Life- and/or Physical Sciences, on how a teacher can incorporate IK in science education.

(33)

QUESTION 2

In this module we looked at Cultural-Historical Activity Theory (CHAT) as a lens to view and interpret science teaching and learning in the classroom. Write an essay, in which you reflect on CHAT as a research lens in science education. In your answer, you should refer to the contributions of, amongst others, Vygotsky, Veresov and Engeström. **(33)**

QUESTION 3

Scaffolding is a process by which a teacher or more knowledgeable peer assists a learner, altering the learning task so that the learner can solve problems or accomplish tasks that otherwise can be out of reach (Collins et al., 1989)
Critically reflect on the nature and effectiveness of scaffolding in science learning by:

- Engaging conceptually with the notion scaffolding
- Discussing forms of scaffolding
- Exploring the feasibility of teachers using scaffolding in their science classrooms **(33)**

QUESTION 4

Discuss the role of language in science learning by identifying how language can act as a barrier to science learning. Also, suggest how teachers can support learners in acquiring the linguistic features of scientific language. Provide examples.

(33)

TOTAL: 100

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