Mathematics Test Item Specification for Grades 1-4 and 5-8 Teachers

Purpose

The purpose of the test is to ensure that mathematics teachers teaching at grade 1-4 and 5-8 level have the prerequisite content and professional knowledge to perform satisfactorily and meet the standard set for the level.

Test characteristics

Number of items: 50 objectives type questions and 5 subjective type questions which comprise two parts (part I and part II) have been prepared. Part I contain 75% of the total score and will be based on the content standards of each cycle. Part II contain 25% of the total score and will be based on the pedagogical standard set for each cycle. For part I 30 objectives type items and 3 subjective type items have been prepared and each objective type item will score two point and the 3 subjective types item each score 5 points. For part II 20 objectives type items in which each item will score one point and 2 subjective type item each score 5 point will be prepared for each cycle. The total test item is checked out of 100. The total time give for the test will be 2 hours.

The test is developed based on the given structure below, the standards set for the level, the performance indicators identified under each standard (elements).

Test design for grade 1-4 Teachers

A. Item Specification for Content Knowledge of Teachers Corresponding to Elements and Syllabus

standard	Elements	No. of Indicators	Element description	Sub-content Area	Test item specification of objective type questions						No. of Questions	Approximate number of subjective type questions
					Recall	Comprehension	Application	Analysis	Synthesis	Evaluation		
Content Knowledge for grade 1-4 mathematics Teachers	1.1	9	number system and operation	-Place value and base-ten number system -Four fundamental operation on numbers -number and number system	1	2	2	1	1	2	9	3
	1.2	7	measurement	-Measurement units -Direct and Indirect measurement -Measurement and formulas to irregular shapes and regions	1	1	1	1	1	1	6	
	1.3	4	geometry	-Geometric figures -Identify two and three dimensional figures	2	1	2	2	1	1	9	
	1.4	5	data handling and statistics	-Simple data -Central tendency and Variation -Construct and interpret graphs	1	1	1	1	1	1	6	

B. Item Specification for pedagogical knowledge of Teachers Corresponding to Elements and Syllabus

standard	Elements	No. of Indicators	Element description	Sub-pedagogical Area	Test item specification of objective type questions						No. of Questions	Approximate number of subjective type questions
					Recall	Comprehension	Application	Analysis	Synthesis	Evaluation		
pedagogical Knowledge for grade 1-4 mathematics Teachers	2.1	13	**Understand how the first cycle primary students learn mathematics**	-objectives in learning -learning style -methods to identify and increasing students ability	1	1	1	1	1	1	6	2
	2.2	19	**Knowledge of the first cycle of primary mathematics teaching strategies**	-methods of teaching -use of teaching strategies	1	1	1		1	1	5	
	2.3	9	**:Knowledge of planning for effective teaching and learning of the first cycle primary mathematics**	-learning goals -instructional planning -plan for students need -plan to assessment	1	1	1	1		1	5	
	2.4	12	**Know to assess the first cycle primary student in learning mathematics and provide feedback**	-methods of assessment -assessment tools -feed back of the assessment		1	1		1	1	4	

Test design for grade 5-8 Teachers

A. Item Specification for Content Knowledge of Teachers Corresponding to Elements and Syllabus

standard	Elements	No. of Indicators	Element description	Sub-content Area	Test item specification of objective type questions						No. of Questions	Approximate number of subjective type questions
					Recall	Comprehension	Application	Analysis	Synthesis	Evaluation		
Content Knowledge for grade 5-8 mathematics Teachers	1.1	6	Arithmetic, number system and operation	-number system operation and application -percentage, ratio and proportion and their application -GCF and LCM	1	1	2	1	1	2	8	3
	1.2	7	Different perspectives on algebra	-sets -relation and function -equation and inequality -proportionality	1	1	2	1	1	1	7	
	1.3	8	Geometry and measurement	-Two and three dimensional shape and modeling -Identify basic facts about a convex polygon -coordinate geometry -Similarity -Trigonometric ratio	1	1	2	2	1	2	9	
	1.4	4	data handling, statistics and probability	-Data collecting, organizing, displaying and analyzing -Statistical method and technological tools -probability	1	1	1	1	1	1	6	

B. Item Specification for pedagogical knowledge of Teachers Corresponding to Elements and Syllabus

standard	Elements	No. of Indicators	Element description	Sub-pedagogical Area	Test item specification of objective type questions						No. of Questions	Approximate number of subjective type questions
					Recall	Comprehension	Application	Analysis	Synthesis	Evaluation		
pedagogical Knowledge for grade 5-8 mathematics Teachers	2.1	12	**Understand how the second cycle primary students learn mathematics**	-objectives in learning -learning style -methods to identify and increasing students ability -steps to apply plan	1	1	1	1	1	1	6	2
	2.2	16	**Knowledge of the second cycle of primary mathematics teaching strategies**	-methods of teaching -use of teaching strategies -use of information and communication technology	1	1	1		1	1	5	
	2.3	9	**Knowledge of planning for effective teaching and learning of the second cycle primary mathematics**	-learning goals -instructional planning -plan for students need -plan to assessment	1	1	1	1		1	5	
	2.4	12	**Know to assess the second cycle primary student in learning mathematics and provide feedback**	-methods of assessment -assessment tools -feed back of the assessment		1	1		1	1	4	