

PhD (Measurement & Evaluation) M.Ed (Measurement & Evaluation) **BBA** (Accounting)

Dr ROHAYA TALIB

(Open-Ended Qs)

FAKULTI SAINS 27 MEI 2021

SOE, FSSH, UTM









Research suggests that teachers spend from one-quarter to onethird of their professional time on assessmentrelated activities.

Almost all do so without the benefit of having learned the principles of sound assessment.

(Stiggins, 2007)

A well-constructed comprehensive assessment system provides continuous, coherent, and high-quality information on student performance that educators and administrators could use to improve teaching and learning and meet their decision-making needs

(Rhode Island Department of Education & the National Center for the Improvement of Educational Assessment)







		Course Information
	TESTING	 Developing Instruments Developing Scoring Guides (Answer Scheme, Rubrics) Administer the instruments
	MEASUREMENT	Scoring the scriptsAnalyzing the scores
Formative	ASSESSMENT	 Giving Feedback (Oral / Written) for Improvement Self-Assessment Peer-Assessment
Summativ	EVALUATION	 Making judgement / Giving Certification

Linn, R.L & Miller, M.D. (2005). Measurement and Assessment in Teaching. Pearson Education Inc., Upper Saddle River, New Jersey





Biggs. J. (2003) Teaching for Quality Learning at University – What the Student Does?. 2nd Edition SRHE / Open University Press, Buckingham.





Where to exercise Alternative Summative Assessment in a course?



Sue Bloxham and Pete Boyd (2007). Effective Assessment in Higher Education: A Practical Guide.

Milton Keynes, Open University Press, ISBN 9780-335-221073

F1 = FORMATIVE 1, F2 = FORMATIVE 2 (Reserve the last 1 hour in giving Feedback to AA) P = Presentation MCR= Meta Content re[ort ICR= Instrumentation Cycle Report



	ASS	SESSMEN	IT STRUCTURE	\frown
1	FINAL EXAM / TAKE HOME EXAM (MCO)	CLO1- PLO1	SUMMATIVE	40%
2	META ANALYSIS REPORT(MCR)	CLO2- PLO2	ALTERNATIVE SUMMATIVE ASSESSMENT	20%
3	INSTRUMENTATION CYCLE REPORT(ICR)	CLO3- PLO7	ALTERNATIVE ASSESSMENT	30%
4	PRESENTATION (P)	CLO4- PLO5	ALTERNATIVE ASSESSMENT	10%
	SCORING		PLO1 (TECHNICAL – CONTENT) – ANSV PLO2 (TECHNICAL - CONTENT) - RUBRIC	VER SCHEME

PLOT (IECHINICAL - CONTENT) - ANSWERSCHEIME PLO2(TECHNICAL - CONTENT) - RUBRIC PLO7 (NUMERICAL SKILL) - RUBRIC

PLO5 (COMMUNICATION SKILL) - RUBRIC ٠

TOOLS



TEST VS EXAM

What does Test mean?

According to the American Heritage Dictionary test means 'a series of questions, problems, or physical responses designed to determine <u>knowledge</u>, intelligence, or <u>ability</u>.'

- A test is a **short exam** that a educator gives to his or her students at the end of a lesson in order to understand how much of what he or she has taught has gone into the students' minds.
- A test is **not** very formal.

Tanner, D.E. (2001). Assessing Academic Achievement. Allyn and Bacon, Needham Heights, MA



TEST VS EXAM

What does **Exam** mean?

The word **exam** referring to a very **formal test / <u>MASTERY</u> test.**

In the educational level, it is a test that tests knowledge **on a number of lessons**.

Exam is held at the end of a <u>semester or a term</u>; can be written exam or practical exam.

Tanner, D.E. (2001). Assessing Academic Achievement. Allyn and Bacon, Needham Heights, MA



UNDERLYING CONCEPT



Provide information about an individual's achievement of a course objective or **MASTERY of an area of the content**

Tanner, D.E. (2001). Assessing Academic Achievement. Allyn and Bacon, Needham Heights, MA

WHAT MAKES AN EXAM A GOOD EXAM?

1.Variance in scores: The goal of discrimination is achieved only if there is sufficient variance in the scores of the test takers. A test which is **too tough** would result in all test takers scoring low marks while one that is **too easy** will lead to overall high scores thereby **not highlighting any discrimination** on any of the criterions and thus neither test is considered good.

2.Reliability: Is a measure of a test's consistency – both over a period of time as well as internal consistency. It measures **precision of test scores** or extent of measurement error in the test (SEM low, Reliability high)

Linn, R.L & Miller, M.D. (2005). Measurement and Assessment in Teaching. Pearson Education Inc., Upper Saddle River, New Jersey



WHAT MAKES AN EXAM A GOOD EXAM?

- Validity: Validity is an indicator of how well an assessment is measuring what it is supposed to measure. In other words it measures a test's usefulness.
- ✓ 4. Truth in Testing/ Integrity: A good test has integrity and transparency built into it at multiple stages.

While the test is being developed, it should be reviewed by a number of experts to make it free of developer bias,

Once the test is developed it is reviewed on the basis of its content and scoring.

Linn, R.L & Miller, M.D. (2005). Measurement and Assessment in Teaching. Pearson Education Inc., Upper Saddle River, New Jersey



Test Blueprint /JSU



• What is Table of Specifications (TOS)?

- TOS, sometimes referred to as test blue print, is a table that helps teachers align objectives, instruction and assessment.
- TOS should be prepared before testing in order to have content sampling and item validity
 - Using TOS to organize a teacher made test help to alleviate content validity problem because it helps the teacher to create good balance in several areas. (Nunnally, 2007).

O.M Alade, Igbinosa Victor Omoruyi (2014). Table Of Specification And Its Relevance In Educational Development Assessment. European Journal of Educational and Development Psychology Vol.2, No.1, pp.1-17, March 2014



A TOS/ Test Blueprint helps to ensure that there is a match between what is taught and what is tested.

The TOS ensures that there is balance between items that test lower level thinking skills and those which test higher order thinking skills

The purpose of a TOS is to identify the achievement domains being measured and to ensure that a fair and representative sample of questions appear on the test.

Chase, C.I. (1999). Contemporary Assessment For Educators. New York: Longman.



- Select **the learning outcomes** to be tested
- **Outline** the subject matter
- Making the two-way chart
- Distributing the number of test item (relative weights) according to cells of the table

COURSE INFORMATION

Mapping of the Course Learning Outcomes (CLO) to the Programme Learning Outcomes (PLO), Teaching & Learning (T&L) methods and Assessment methods:

	No.	CLO*	PLO (Code)	**Taxono mies and ***generi c skills	T&L methods	****Assessment methods	
Discus	s criti	cally the psychological test in	PLO1	C6	Lecture	Final Exam: 40%	
1		terms of its psychometric properties,	(KW)		Intermittent	\land	V
L .		procedures in designing for research			Discussion (ID):		
		purpose, interpretation of the scores			Think-Pair-		
		and/or the challenges, trends and			Share		
		issues related to psychological testing.			Round Robin Mind Mapping		Levels of Cognitive
	CL 02	Design Meta Content Analysis	PLO2	6	Case Study	Meta-Analysis Report:	Bloom's Taxonomy
	0202	according to the principles of	(CG)		ID: Read &	20%	Produce new or original work Design assentie construct, cojectare, dewign, formulate, author, investigate
		measurement to extract the			Examine		evaluate Justify a stand or decision approximation approximation approximation approximation of the sector of the
		conceptual and operational definition			Brainstorming	*Report Rubric	Draw connections among ideas differentiate agrade, relate, compare, contrast, distinguist, examine, experiment, question, traine, compare, contrast, distinguist, examine,
		of a construct being measured.					apply Use information in new situations exerct, improved, service, service and service and the pred operate, service and servi
							Explain ideas or concepts classify, describe discuss, explain, identity, locate, recognite,

Armstrong, P. (2010). Bloom's Taxonomy. Vanderbilt University Center for Teaching. Retrieved 3 May 2021] from https://cft.vanderbilt.edu/guides-sub-pages/bloomstaxonomy/.

Vanderbilt University Center for Teaching

remember

eport, select, transl

Recall facts and basic concepts define, duplicate, list, memorize, repeat, stat



Taxonomy Bloom (2001) – Action Verb

REVISED Bloom's Taxonomy Action Verbs

Definitions	I. Remembering	II. Understanding	III. Applying	IV. Analyzing	V. Evaluating	VI. Creating
Bloom's Definition	Exhibit memory of previously	Demonstrate understanding of	Solve problems to new situations by	Examine and break information into	Present and defend opinions	Compile information
	by recalling facts, terms, basic concepts, and	organizing, comparing, translating.	knowledge, facts, techniques and rules in a different	motives or causes. Make inferences and find evidence	judgments about information, validity of ideas.	different way by combining elements in a
	answers.	interpreting, giving descriptions, and stating main ideas.	way.	to support generalizations.	or quality of work based on a set of criteria.	new pattern or proposing alternative
Verbs	 Choose Define Find How Label List Match Name Omit Recall Relate Select Show Spell Tell What When Where Which Who Why 	 Classify Compare Contrast Demonstrate Explain Extend Illustrate Infer Interpret Outline Relate Rephrase Show Summarize Translate 	 Apply Build Choose Construct Develop Experiment with Identify Interview Make use of Model Organize Plan Select Solve Utilize 	 Analyze Assume Categorize Classify Compare Conclusion Contrast Discover Dissect Distinguish Divide Examine Function Inference Inspect List Motive Relationships Simplify Survey Take part in Test for Theme 	 Agree Appraise Assess Award Choose Compare Conclude Criteria Criticize Decide Deduct Defend Determine Disprove Estimate Evaluate Explain Importance Influence Influence Influence Influence Judge Justify Mark Measure Opinion Perceive Prioritize Prove Rate Recommend Rule on Select Support Value 	Adapt Adapt Build Change Choose Combine Compile Compose Construct Create Delete Design Develop Discuss Elaborate Estimate Happen Imagine Improve Invent Make up Maximize Modify Original Original Original Original Plan Predict Popose Solution Solve Suppose Test Theory

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing, Abridged Edition. Boston, MA: Allyn and Bacon.





M

<u>++</u>		
Week 1	Introduction to Scaling and Instrumentation	
Week 2	Measurement Data (Nominal, Ordinal, Interval, Ratio)	✓
Week 3	Types of Scales	\checkmark
Week 4	Instrumentation Plan	\checkmark
Week 5	Instrument Development Process	\checkmark
Week 6	Instrument Conceptualization [Questionnaire]	✓
Week 7	Item Construction	✓
Week 8	Pilot Test	\checkmark
Week 9	Semester Break	
Week 10	Establish Validity	\checkmark
Week 11	Establish Reliability	\checkmark
Week 12	SPSS/Winsteps (Data Input)/	
Week 13	SPSS/Winsteps (Data Analysis)	✓
Week 14	SPSS/Winsteps (Data Interpretation)	
Week 15	Revision	
Week 16-18	Exam	

SCHOOL & FACULTY School of Education Faculty of Social Sciences and Humanities NAME CODE : COURSE SECTION SECTION SESSION Value Value No. TOPIC/SUBTOPIC	%)
NAME CODE : COURSE SECTION SECTION SESSION Objective Items (D) COGNITIVE LEVELS No. TOPIC/SUBTOPIC	%)
COURSE CODE : SECTION SECTION SESSION Image: Section line SESSION Image: Section line Image: Section line Image: Section line <th>%)</th>	%)
No. SECTION SECTION No. COGNITIVE LEVELS Apply No. CLO CLO PLO CLO PLO CLO PLO CLO PLO CLO PLO CLO PLO CLO PLO CLO PLO PLO PLO PLO PLO PLO PLO P	%
No. LODIC/SABL No. COCOUNTIVE FEARS (D) CLO CLO PLO PLO	%
No. LODIC/SABL No. CCOUNTIAL FEARS (D) PLO CLO PLO PLO PLO PLO Apply Apply	(%)
No. CLO Objective Items (O) Essay Items (D) PLO CLO Remember Nunderstand Apply Apply Apply Apply Inderstand Inderstand Inderstand Inderstand Inderstand Inderstand Inderstand Inderstand	(%
S S S	Total Percentage ('
Total	<u> </u>
Percentage (%)	<u> </u>
LOTS HOTS	1

Prepared By:

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Date:

Faculty of Social Science and Humanities@2018



	TEST BLUEPRINT	
SCHOOL & FACULTY	School of Education Faculty of Social Sciences and Humanities	
NAME		
COURSE		CODE :
SECTION		SESSION

						CO	GNITIVE	LEVEL	s		
No.	TOPIC/SUBTOPIC	Objective Items (O) Essay Items (E)	070	DTU	Remember	Understand	Apply	Analyze	Evaluate	Synthesize / Create	Total
1	Measurement Data (Nominal, Ordinal, Interval, Ratio)	0	1	1	1,2						2
2	Types of Scales	0	1	1		3		4			2
3	Instrumentation Plan	0	1	1	5			6	7	8	4
4	Instrument Development Process	0	1	1		9	10	11			3
5	Instrument Conceptualization [Questionnaire]	0	1	1		12	13,14		15	16	5
6	Item Construction	0	1	1	17	18		19	20	21	5
7	Pilot Test	0	1	1		22		23	24		3
8	Validity	0	1	1	25		26			27	3
9	Reliability	0	1	1					28		1
10	Data Analysis and Interpretation	Ō	1	1			29			30	2
	Total				5	5	5	5	5	5	30
	Percentage (%)					50%			50%		100%
						LOTs			HOTs		

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Date:

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Balance, Fair, Representative

⇔

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	TEST BLUEPRINT	
SCHOOL & FACULTY	School of Education Faculty of Social Sciences and Humanities	
NAME		
COURSE		CODE :
SECTION		SESSION

		_					COGNIT	IVE LEVELS	5		—L_
No.	TOPIC/SUBTOPIC	Objective Items (O) Essay Items (E)	CLO	PLO	Remember	Understand	Apply	Analyze	Evaluate	Synthesize / Create	Total
1	Measurement Data (Nominal, Ordinal, Interval, Ratio)	E			1 (i)- 3m	1(ii)-4m					
	Types of Scales		1	1			1(iii)- 3m				
2	Instrumentation Plan					2(i)-3m					
		E	1	1				2(ii)-3m			
	Instrument Development Process								0(0) 4		
	Instrument Conceptualization								2(111)-4m		
3	Item Construction	E	1	1					3(i)-5m	3(ii)-5m	
4	Pilot Test					4(i)-3m					
			1	1				4(ii)-3m			
	Validity	E							4(iii)-4m		
10	Data Analysis and Interpretation	F	1	1			5(i)-2m	5(ii)-4m		5(iii)-4m	
10	Total				3	10	5	10	13	9	40
	Percentage (%)				-	18%	-		22%		100
						LOTs			HOTs		
D	I D										

Prepared By:

Date:



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Start Constructing Items Based on Test Blueprint

MPPR1333 Introduction to Scaling and Instrumentation



UNIVERSITI TEKNOLOGI MALAYSIA FAKULTI PENDIDIKAN

FINAL EXAM (TAKE HOME EXAM)

SEMESTER II SESSION 2020/2021

INTRODUCTION TO SCALING AND INSTRUMENTATION

Five Hours

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

Instructions:

- 1. This paper consists of thirty (30) multiple choice questions.
- 2. Answer all questions in teh answer sheet given.





Sue Bloxham and Pete Boyd (2007). Effective Assessment in Higher Education: A Practical Guide.

Milton Keynes, Open University Press, ISBN 9780-335-221073

F1 = FORMATIVE 1, F2 = FORMATIVE 2 (Reserve the last 1 hour in giving Feedback to AA) P = Presentation MCR= Meta Content re[ort ICR= Instrumentation Cycle Report



UNVERSITI TEKNOLOGI MALAYSIA	
	Take Home Exam
	Traditional
	Final Exam

Bloom's Taxonomy



- Can all PLOs be measured in the final exam? (PL01 and PL02)
- Trad-FE only appropriate to measure cognitive **domain** (6 levels of Taxonomy Bloom)



Case 2



MULTI-POINT SUMMATIVE

ALTERNATIVE SUMMATIVE ASSESSMENT = 100%

CONTINUOUS, HOTS, FEEDBACK, VARIETIES (AUTHENTIC, PERFORMANCE, PROJECT, PORTFOLIO...)

Sue Bloxham and Pete Boyd (2007). Effective Assessment in Higher Education: A Practical Guide.

Milton Keynes, Open University Press, ISBN 9780-335-221073

F1 = FORMATIVE 1, F2 = FORMATIVE 2 (Reserve the last 1 hour in giving Feedback to AA) P = Presentation MCR= Meta Content Report ICR= Instrumentation Cycle Report





Take Home Exam

Alternative Summative Assessment used to determine what students can and cannot do (PLO2, PLO3 + PLO Generic)

in contrast

 to what they know or do not know (PLO1 & PLO2)



open-ended questions require complex thinking and produce a variety of solutions (Badger 1992)

Finkel (2000) states specifically that open-ended question should be like the parable of the puzzle that intrigue the mind, but also challenging enough so that students would be interested in the answer.

Badger, E., B. Thomas, (1992). Open-ended questions in reading. Practical Assessment, Res. and Evaluation, 3(4). Finkel, D.L., (2000). Teaching with Your Mouth Shut. Boynton/Cook Publishers.



The Features of Open-ended Questions (Felder, 1987).

Open-ended questions should be able to challenge the students

- to demonstrate a deep understanding of the materials being studied,
- the ability to use techniques from other disciplines, and
- the ability to assess the value of design, product, or system

Felder, R. M. (1987). On Creating Creative Engineers. Engineering Education, 77(4), 222-227.



Cooney et al (2004) stipulates that the open-ended question should include the following features:

- 1. Authentic (real-world) Problem Solving
- 2. Require Multiple answer
- 3. Require Reasoning
- 4. Clearly Stated
- 5. Scoring Rubric (multiple point)

1. IT INVOLVES A SIGNIFICANT CONCEPT IN A RELATED FIELD.

The assessment items conveyed to the students what needs to be emphasized and what is important.

It involves giving students the chance to display their understanding by linking the entire topic and how it can lead to real world problem solving (authentic).



Cooney et al (2004) stipulates that the open-ended question should include the following features:

2. THERE COULD BE MULTIPLE ANSWERS TO OPEN-ENDED QUESTIONS.

When a question requires one correct answer, students often conclude there is only one way to solve the problem.

Questions that require students to explain their thinking will encourage a variety of responses or reactions because not all students think the same.

For example, can an equilateral triangle have right angle? If yes, explain your reasons. Typically, students focused on the angle and concluded that it is not possible, because all the sides of an equilateral triangle must have the same length and an equilateral triangle cannot have 270 degrees.

But one student replied that no, because if it has a right angle it will have a hypotenuse. And it will become the longest side. But since all sides are of the same length so it cannot happen

- 1. Authentic (real-world) Problem Solving
- 2. Require Multiple answer
- 3. Require Reasoning
- 4. Clearly Stated
- 5. Scoring Rubric (multiple point)



Cooney et al (2004) stipulates that the open-ended question should include the following features:

- 1. Authentic (real-world) Problem Solving
- 2. Require Multiple answer
- 3. Require Reasoning
- 4. Clearly Stated
- 5. Scoring Rubric (multiple point)

3. NEED TO COMMUNICATE THE REASONING PROCESS.

One strong point of using open-ended questions is that students are given the opportunity to communicate what is in their minds

Example

Mary claimed that the area of any 30-60-90 triangle can be calculated even if only one side of the given length. Is Mary right or wrong? Explain your answer.

Here is an answer given by students: Mary is right. If you know the length of one side, you can divide or multiply with 3 or 2. After that, the height is multiplied with the base, divide by 2, and you will get the answer.

Another student gave the following response: Mary is wrong. Since all the angles are different, then all the sides are of different length. By knowing only one side initially, you would need to know the length of the other two sides (height and base) to calculate the area of the triangle.

The first student sees the relevance relations among the sides of the triangle 30-60-90, while the second student who may not realize this, does not see the relevance context of this problem.

When students are required to communicate their reasoning process, it was easy to understand what they know and they can use this to solve the given problem



Cooney et al (2004) stipulates that the open-ended question should include the following features:

1. Authentic (real-world) Problem Solving

2. Require Multiple answer

- 3. Require Reasoning
- 4. Clearly Stated
- 5. Scoring Rubric (multiple point)

4. OPEN-ENDED QUESTIONS SHOULD BE CLEARLY STATED.

The fact is that open-ended questions should not be incomprehensible.

These types of questions should have a clear purpose even if there are many different answers.

In addition, students need to know what is expected of them and what lecturers consider as a good and complete response.

Many lecturers find that sharing a variety of answers with their students and asked them to evaluate these responses helped the students to determine what constitutes a good response.

This is because students are often not used to explain their thoughts in writing and it is important to help them to improve their communication, analytical and critical thinking skills.



Cooney et al (2004) stipulates that the open-ended question should include the following features:

5. HAVE A SCORING RUBRIC.

Each item evaluated must have at least a 3-4-points rubric

- 1. Authentic (real-world) Problem Solving
- 2. Require Multiple answer
- 3. Require Reasoning
- 4. Clearly Stated
- 5. Scoring Rubric (multiple point)

But the purpose of the open-ended questions is to provide students with the opportunity to communicate their understanding in something other than the scenario of exactly right or wrong answer.

To give students partial credit is a common perception, and using the rubric to formulate the process helps to ensure fairness.

One of the features for a good open-ended question is to get the answer that agrees with the partial credit as defined by the rubric. As an example in the question of whether an equilateral triangle have a right angle?

Answer yes or no does not involve a partial credit, but the answer to why will allow a partial credit to be given.



Table 1. Open-ended question as modified from the closed-ended question

Example of closed-ended questions	Modified to open-ended questions
Which of the following numbers are prime? 7, 57, 67, 117	Fred thinks that 57 and 67 are prime because the both end in 7, which is a prime number. Dick say he is wrong. Who is correct and why?
What are the next three numbers in the following sequence? 1, 4, 7, 10, 13,,,	Consider the following sequence: 1, 4, 7, 10, 13, . Is 100 a member of this sequence? Explain you reasoning.
Round 37.67 to the nearest 10th.	Generate three different numbers that whe rounded to the nearest 10th give 37.7.
Find the LCM of 18 and 24	Why can't 48 be the LCM of 18 and 24?

Boaler, J. (1998). Open and Closed Mathematics: Student Experiences and Understandings. J. for Res. in Math. Ed., 29(1), 41-62



- a) Determine the optimum solutions at the end user level for improving overall voltage sag performance and reliability.
- b) Design a simple test distribution system for the customer facility as shown in Figure 2. PCC-1 is the utility bus at 13.8 kV and PCC-2 is the customer bus at 480 V. The data of PCC-2 bus are as follows:

Tr₂ = 1000 kVA, 5.0% impedance on 1000 kVA base

 $I_{load} = 1000 A$

The measured distortion is equal to 90 A at 5th harmonic and 44 A at 7th harmonic. The short circuit impedance on 13.8 kV bus is equal to 1.7% on 1000 kVA base.

(b) Question 2

	Noncompliance	Table 2. Qualitative analysis of open-ended questions that met the feature								
			Question	Feature 1	Feature 2	Feature 3	Feature 4	Feature 5		
		1	1	1	х	х	1	у		
1.	Authentic (real-world) Problem Solving		2	\checkmark	Part a) √	Part a) √	\checkmark	у		
2	Dequire Multiple Answer				Part b) x	Part b) x	\checkmark	у		
Ζ.	Require multiple Allswer	l '	3	Ń	Part a) x	Part a) x	Ń	у		
3	Require Reasoning				Part b) √	Part b) √	\checkmark	у		
	Require Reasoning				Part c) √	Part c) √	\checkmark	У		
4.	Clearly Stated				Part d) x	Part d) x	\checkmark	У		
5	Saaring Bubria (multiple point)		4	\checkmark	Part a) √	Part a) √	\checkmark	\checkmark		
5.	Scoring Rubric (inutuple point)				Part b) √	Part b) √	\checkmark	1		

HafizahHusain[,] BadariahBais[,] AiniHussain[&] Salina AbdulSamad (2012)[,] How to Construct Open Ended Questions. How to Construct Open Ended Questions. https://www.sciencedirect.com/science/journal/18770428



HafizahHusain[,] BadariahBais[,] AiniHussain[&] Salina AbdulSamad (2012)[,] How to Construct Open Ended Questions. https://www.sciencedirect.com/science/journal/18770428

4

Part a) √

Part b) √

Part a) √

Part b) √



HafizahHusain BadariahBais AiniHussain[&]Salina AbdulSamad (2012) How to Construct Open Ended Questions. https://www.sciencedirec t.com/science/journal/18 770428

Malaysian Education Blueprint 2015-2025_HOTs Take Home Exam Open Book Exam Extended Time

> It is recommended that the open-ended questions posed in the final examination should consist of 30% of the total marks (40%)











Balance, Fair, Representative

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TEST BLUEPRINT						
SCHOOL & FACULTY	School of Education Faculty of Social Sciences and Humanities					
NAME						
COURSE		CODE :				
SECTION		SESSION				

		_			COGNITIVE LEVELS								
No.	TOPIC/SUBTOPIC	Objective Items (O) Essay Items (E)	070	DTO	Remember	Understand	Apply	Analyze	Evaluate	Synthesize / Create	Total		
1	Measurement Data (Nominal, Ordinal, Interval, Ratio)	F	1		1 (i)- 3m	1(ii)-4m							
	Types of Scales			1			1(iii)- 3m						
2	Instrumentation Plan	E				2(i)-3m							
			E	E	1	1				2(ii)-3m			
	Instrument Development Process		· ·						2(iii)-4m				
	Instrument Conceptualization												
3	Item Construction	E	1	1					3(i)-5m	3(ii)-5m			
4	Pilot Test		E 1			4(i)-3m							
				1				4(ii)-3m					
	Validity Reliability	E				-					4(iii)-4m		
10	Data Analysis and Interpretation	E	1	1			5(i)-2m	5(ii)-4m		5(iii)-4m			
Total					3	10	5	10	13	9	40		
	Percentage (%)					18%			22%		100 %		
						LOTs	•		HOTs				

Prepared By:

Revise the Test Blueprint

10%



Faculty of Social Science and Humanities@2018



INTRODUCTION TO SCALING AND INSTRUMENTATION

Five Hours

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

Instructions:

- 1. This paper consists of thirty (30) multiple choice questions.
- 2. Answer all questions in teh answer sheet given.



innovative • entrepreneurial • global