

Guidelines on

Multiple-Choice Examinations

Part of the Handbook for Study, Teaching, and Learning

Version 1.0

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Please note that the English version of this guideline is purely for your convenience and is not legally binding. Only the German version is legally binding.

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1. Legal Obligation

Multiple-choice is a permissible form of examination as long as a provision in the examination regulation stipulates this, as in Section 7 (4) and Section 10 (4-6) of the General Examination Regulations (GER), Section 9 (4) and Section 13 (4-6) GER LAB (Bachelor's in Teacher Training), Section 11 (4) and Section 14 (4-6) GER M.Ed. (Master's in Teacher Training) 2017, and Section 10 (4) and Section 13 (4-6) M.Ed. 2014. This means that multiple-choice examinations are generally permissible in all courses of study at RWTH.

2. Basic Nature of Multiple-Choice Examinations

In multiple-choice examinations, candidates must decide which of several predefined variants of a solution to a task or answer to a question is or are correct. You may not make any additional comments. There is no standard time limit for multiple-choice tasks. Rather, as with all written examinations, the task must be set in such a way that the examination can be completed within the specified time.

3. Examination Tasks at an Earlier Point in Time



Unlike regular written examinations, a student's performance in multiple-choice examinations is not generally evaluated on an individual basis after the test, but rather mechanically. The examiner is therefore required to perform their examining duty at an earlier point in time compared to regular examinations. For multiple-choice examinations, their tasks consist of selecting the test content, formulating the questions, and determining the correct and incorrect answers.

If a student is registered for an examination and it is their last examination attempt and no compensation option is provided, the examination tasks must be prepared by two examiners (Section 12 (3), sentence 2 General Examination Regulations (GER), Section 16 (3), sentence 2 GER LAB (Bachelor's in Teacher Training), Section 16 (3), sentence 2 GER M.Ed. (Master's in Teacher Training) 2014, and Section 15 (3), sentence 2 GER M.Ed. 2017).

4. Possible Procedures

Two different procedures can be implemented for multiple-choice examinations: single-choice and multiple-select formats.

4.1 Single Choice

The single-choice procedure means only one of the predefined answers is correct. If a student selects the correct option and none of the wrong options, they are awarded the full score for the task. If however they do not select the correct answer, or they opt for one or more wrong options, they will not be awarded any points for the task.

4.2 Multiple Select

The multiple-select method means there may be several correct answers per task. In this case, the following options may be awarded points:

- “All or nothing”
The full score for a task will only be awarded if the correct answer(s) are selected and no wrong option(s).
- Scaled scoring
Taking the example of a task with four correct answers, three points are awarded when all four correct answers are selected, two points for three correct answers, but no points when no, one, or only two correct answers, or any incorrect answers are selected.

The chosen points system is part of the evaluation criteria and must be recognizable to candidates on the test sheet and in the CMS 14 days prior to the examination. It is not necessary to indicate the number of correct answers for each question however.



There is no negative marking in multiple-choice examinations. Therefore, no points may be deducted due to incorrect answers.

5. Evaluating Multiple-Choice Examinations

According to Section 10 (4), sentence 3 GER, Section 13 (4), sentence 3 GER LAB, Section 14 (4), sentence 3 GER M.Ed. 2014, and Section 13, (4), sentence 2 GER M.Ed. 2017, examinations that only follow a multiple-choice format are considered passed if

a) 60% of the maximum points has been achieved (*absolute pass mark*)

or

b) at least 50 % of the maximum points has been achieved and the points attained are no lower than 22% of the average points obtained by candidates taking the examination for the first time (*relative pass mark*).

The first step always requires both the absolute and the relative pass marks to be determined (see Appendix 1 for calculation examples).

The pass mark that is more favorable for students will be applied.

Secondly, the grade ranges must be determined according to Section 10 (5) GER, Section 13 (5) GER LAB, Section 14 (5) GER M.Ed. 2014, and Section 13, (5) GER M.Ed. 2017. If a candidate achieves the minimum number of required points and thus passes the exam, they are graded as follows:

- very good, if they achieve at least 75% of the maximum number of attainable points
- good, if they achieve at least 50%, but less than 75% of the maximum number of attainable points
- satisfactory, if they achieve at least 25%, but less than 50% of the maximum number of attainable points
- sufficient if they achieve less than 25% of the maximum number of attainable points (see Appendix 2 for calculation examples).



The grades stipulated above ("very good", "good", "satisfactory", and "sufficient") refer to grade ranges. This means that grades 1.0 and 1.3 fall in the "very good" range, grades 1.7, 2.0, and 2.3 fall in the "good" range, grades 2.7, 3.0, and 3.3 fall in the "satisfactory" range, while grades 3.7 and 4.0 fall in the "sufficient" range.

It is up to the examiner to decide the points each grade range should span, for example, the range of points awarded a 3.0 or a 2.7 for the "satisfactory" grade.

6. Remedy for Unsuitable Tasks

If a multiple-choice examination includes unsuitable or incorrect questions, this must be rectified as part of the evaluation process. An examination task can essentially be considered unsuitable or incorrect due to three different reasons:

- The question is worded in an incomprehensible, contradictory, or ambiguous way.
- The question can be resolved with several of the predefined answers.
- The correct answer as indicated by the sample solution is actually wrong.

If one of these situations applies, two different remedies can be pursued:

- The affected task will be withdrawn

The task will not be taken into account when the score is determined. In this case, the maximum number of points that can be achieved and, subsequently, the calculation of the absolute and relative pass marks must be adjusted.

- Crediting the full score for the task

The maximum number of points that can be achieved for the affected task will be credited to the score. It will therefore be faked that the candidate has earned the full score for the task.

If there are several erroneous tasks in one examination, the remedy must be consistent, i.e. either all the affected tasks will be withdrawn, or the full score will be credited for all the affected tasks.

7. Evaluation of Mixed Exams

If a written examination consists of both multiple-choice tasks and other tasks, the two individual examination parts must first be evaluated individually, see Section 10 (6) GER.

The multiple-choice section will be evaluated according to Section 10 (4 and 5) GER, Section 13 (4 and 5) GER LAB, Section 14 (4 and 5) GER M.Ed. 2014, and Section 13, (4 and 5) GER M.Ed. 2017. The other tasks are evaluated according to the method usually used for the respective type of question. The exam grades are fixed according to the grade scale

specified in Section 10 (1) GER, Section 13 (1) GER LAB, Section 14 (1) GER M.Ed. 2014, and Section 13 (1) GER M.Ed. 2017.

The final grade is weighted by multiplying the grades for the individual examination parts in proportion to the assigned weight of the task types. This is determined by the percentage that can be attained at maximum in the different type of tasks. The exam grade is calculated from the weighted results of both parts of the examination.¹

When calculating the examination grade, the first decimal place after the period is taken into account in accordance with Section 10 (12) GER. Meanwhile, the regulation in Section 13 (11) GER LAB, Section 14 (11) GER M.Ed. 2014, and Section 13 (11) GER M.Ed. 2017 stipulates that the second decimal place after the period is taken into account. If necessary, the exam grade must be rounded to the nearest value according to Section 10 (1) GER, Section 13 (1) GER LAB, Section 14 (1) GER M.Ed. 2014, and Section 13 (1) GER M.Ed. 2017. If the value lies exactly between two grade ranges, the better grade will be selected.

If the two independent evaluations result in a value lower than 4.0, the work will be conclusively assessed as "poor". In these cases, no rounding will take place.

¹ Example:

Grades of exam parts: multiple-choice part 1.0, other tasks 2.0.

For equally-weighted examinations (arithmetic mean): $(1.0 + 2.0) / 2 = 1.5$

When examination parts are weighted differently (multiple-choice part 40%, other tasks 60%, weighted arithmetic mean): $(1.0 \times 0.4) + (2.0 \times 0.6) = 1.6$

See Appendix 3 for further examples.

Appendix 1: Examples for Calculating the Pass Mark

Example 1

Suppositions

Maximum number of points that can be achieved:	90
Average number of points achieved by all students taking the examination for the first time:	67

Absolute Pass Mark

60% of the maximum number of points that can be achieved:	$0.6 \times 90 =$	54
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Relative Pass Mark

50% of the maximum number of points that can be achieved:	$0.5 \times 90 =$	45
78% of the average number of points achieved by all students taking the exam for the first time:	$0.78 \times 67 =$	52.26

The relative pass mark of 52.26 points is decisive.

Example 2

Suppositions

Maximum number of points that can be achieved:	120
Average number of points achieved by all students taking the examination for the first time:	73

Absolute Pass Mark

60% of the maximum number of points that can be achieved:	$0.6 \times 120 =$	72
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Relative Pass Mark

50% of the maximum number of points that can be achieved:	$0,5 \times 120 =$	60
78% of the average number of points achieved by all students taking the exam for the first time:	$0,78 \times 73 =$	56.94

The relative pass mark of 60 points is decisive.

Example 3

Suppositions

Maximum number of points that can be achieved:	40
Average number of points achieved by all students taking the examination for the first time:	33

Absolute Pass Mark

60% of the maximum number of points that can be achieved:	$0,6 \times 40 =$	24
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Relative Pass Mark

50% of the maximum number of points that can be achieved:	$0.5 \times 40 =$	20
78% of the average number of points achieved by all students taking the exam for the first time:	$0,78 \times 33 =$	25.74

The absolute pass mark of 24 points is decisive.

Appendix 2: Examples for Calculating Grade Ranges

Example 1

Suppositions

Maximum number of points that can be achieved:	90
Minimum number of points/absolute pass mark:	52.26
Remaining points achieved:	37.74

Calculating the Minimum Pass Mark

Minimum pass mark for "very good":	$52.26 + (37.74 \times 0.75) =$	80.57
Minimum pass mark for "good":	$52.26 + (37.74 \times 0.5) =$	71.13
Minimum pass mark for "satisfactory":	$52.26 + (37.74 \times 0.25) =$	61.70

This results in the following grade ranges:²

"very good"	81 to 90 points
"good"	72 to 81 points
"satisfactory"	62 to 71 points
"sufficient"	53 to 62 points

Example 2

Suppositions

Maximum number of points that can be achieved:	120
Minimum number of points/absolute pass mark:	60
Remaining points achieved:	90

Calculating the Minimum Pass Mark

Minimum pass mark for "very good":	$60 + (60 \times 0.75) =$	105
Minimum pass mark for "good":	$60 + (60 \times 0.5) =$	90
Minimum pass mark for "satisfactory":	$60 + (60 \times 0.25) =$	75

² The following grade ranges assume that only whole points were awarded in the examination.

This results in the following grade ranges:²

“very good”	105 to 120 points
“good”	90 to 105 points
“satisfactory”	75 to 90 points
“sufficient”	60 to 75 points

Example 3

Suppositions

Maximum number of points that can be achieved:	60
Minimum number of points/absolute pass mark:	24
Remaining points achieved:	36

Calculating the Minimum Pass Mark

Minimum pass mark for “very good”:	$24 + (36 \times 0.75) = 51$
Minimum pass mark for “good”:	$24 + (36 \times 0.5) = 42$
Minimum pass mark for “satisfactory”:	$24 + (36 \times 0.25) = 33$

This results in the following grade ranges:²

“very good”	51 to 60 points
“good”	42 to 51 points
“satisfactory”	33 to 42 points
“sufficient”	24 to 33 points

Appendix 3: Examples for Calculating Grades for Mixed Examinations Where the Examination Parts Are Weighted Differently (Calculating the Weighted Arithmetic Mean)

Supposition

Maximum total points to be achieved: 90
 Maximum points to be achieved in the multiple-choice part: 20
 Maximum points to be achieved in the general part: 70

Example 1

Grade for the multiple-choice part: 1.7	Grade for the general part: 1.0	Average grade: $((70/0.9*1.0)+(20/0.9*1.7))/100$ $= 1.15555555$	Rounded grade: 1.0
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Example 2

Grade for the multiple-choice part: 1.0	Grade for the general part: 1.7	Average grade: $((70/0.9*1.7)+(20/0.9*1.0))/100$ $= 1.54444444$	Rounded grade: 1.3
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Example 3

Grade for the multiple-choice part: 2.7	Grade for the general part: 5.0	Average grade: $((70/0.9*5.0)+(20/0.9*2.7))/100$ $= 4.48888888$	Rounded grade: 5.0
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