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Legislative Council Panel on Education

**Mechanism for checking and marking examination papers
for examinations administered by
the Hong Kong Examinations and Assessment Authority**

A paper on the mechanism for checking and marking examination papers for written examinations administered by the Hong Kong Examinations and Assessment Authority (HKEAA), prepared by the HKEAA, is attached.

Education Bureau
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Purpose

This paper sets out the mechanism for checking and marking examination papers for written examinations administered by the Hong Kong Examinations and Assessment Authority (HKEAA).

Development of examination papers

Basic principles

2. HKEAA's prime objective in administering examinations is to provide a fair and reliable examination service to assess candidates' achievement. To achieve this objective, the following basic principles apply to the setting of examination papers:

    (a)   <u>Coverage and Level</u>
- The syllabus should be evenly and adequately covered in the question paper. Anything outside the scope of the syllabus should not be included.
- The paper as a whole should be of an appropriate standard and provide a fair test for an average candidate.
- The time allocated to each question in respect of the whole paper should be adequate and fair.

    (b)   <u>Questions and Marking Schemes</u>
- The question paper should contain no ambiguities and the wording of each question should be precise, definite and easily understandable.
- The questions and marking schemes in the two language versions should convey identical meanings.
- The marking scheme should be sufficiently flexible to allow for differences of opinion as to what constitute the main points.
- For open-ended questions requiring extended answers, the marking scheme should make definite provision to reward candidates who show evidence of the qualities outlined in the aims and objectives of the syllabus as well as higher-order skills such as analysis and original thinking.

Process

3.   The main process in the development of examination papers comprises question setting, moderation, checking and proofreading of question papers and review after examination.

Setting and moderation of question papers

4.   Moderation committees are set up for the setting and moderation of question papers.   The duties of the moderation committee are to ensure that the questions are consistent with the curriculum aims and assessment objectives and appropriate in terms of coverage, standard and wording, and that the marking scheme is easy to follow and allows reasonable room for markers to exercise their own judgment and discretion.

5.   Normally, one moderation committee is set up for each paper of a subject.   Each moderation committee usually comprises five members, namely, a Chief Examiner, two moderators, a setter, and the Manager of Assessment Development Division (M-AD) who is also the secretary. Members of the moderation committee are subject experts, or tertiary/secondary teachers who are familiar with the requirements of the examination and teaching syllabuses.

6.   To ensure impartiality of members of the moderation committee, and that questions are kept confidential, members of the moderation committees are required to sign an undertaking not to divulge their appointment or any confidential information to an unauthorised person, nor to be involved in tutorial school work within one year after the examination.   In addition, they have to make declarations to ensure that they and their spouses/close relatives are not involved with tutorial schools/publishing companies, and are not teaching the students who will take the subject examination concerned.

7.   The setter will prepare draft questions based on the directions determined by the moderation committee.   The moderation committee holds meetings at regular intervals, where draft papers are examined and amended. On completion of moderation, the Chief Examiner and M-AD will submit a Report on the Work of the Moderation Committee confirming that the paper and marking scheme have been produced in accordance with the requirements of the HKEAA.

Checking and proofreading of question papers

8.   In order to strive to keep the incidence of human errors to the minimum, the HKEAA has implemented a comprehensive system for checking and proofreading of question papers.

9.   After the completion of the moderation process, the question paper is polished by language officers. The preliminary camera-ready copy is then prepared. This is proofread by two proofreaders and a buddy proofreader (normally a subject manager in charge of a similar subject). In addition, multiple-choice papers, listening test papers and papers involving calculations are worked through by two assessors to ensure that the questions are workable from a candidate's point of view.   The final version is then proofread by the M-AD and Chief Examiner before the finalised camera-ready copy is delivered to the printer.   Film plates are proofread by the M-AD/Chief Examiner at the printer's office before approval is given for printing.   After the completion of printing, the printed question paper is proofread by a third proofreader and again by the M-AD and Chief Examiner.

10.   The following are the guidelines for the checking and proofreading process:

(a)   The eligibility and security requirements for both the assessors and the proofreaders are the same as those for moderation committee members, and they also have to undertake similar declaration procedures.   To enhance the effectiveness of checking and proofreading, assessors are not members of the moderation committee.

(b)   Proofreaders are responsible for checking errors and omissions, including pictures, diagrams, graphs, charts, headers, footers and page numbers etc.   They are normally drawn from outside the moderation committee so that they can look at the question paper with fresh eyes.

(c)   In addition to buddy proofreading within the team, language papers must be buddy proofread by at least one non-language subject manager.

(d)   Specific checklists are provided to assessors and proofreaders to facilitate their work and to ensure that all aspects of the paper are checked.

(e)   Changes suggested by assessors and proofreaders are recorded by the M-AD and brought to the attention of the Chief Examiner when the finalised version of the paper is proofread by the Chief Examiner.

11.   The Public Examination Board (PEB) is a standing committee of the HKEAA Council to make decisions on matters concerning the conduct of public examinations.   Under the PEB, subject committees are set up to oversee the assessment of each subject.   Members include secondary and tertiary teachers as well as representatives of the Education Bureau.   After the examination, the subject committees will review the examination papers and marking schemes.   Their comments will be forwarded to the moderation committees for the following year's papers.   A report on each subject will also be submitted to the PEB.   This monitoring mechanism aims at ensuring continuous improvement in the quality of the question papers and marking.

Marking of examination scripts

12.   Marking involves professional judgment.   For questions of an open-ended nature, typically those testing creativity and high-order thinking skills, there may be variances in the marks awarded to the same script by different markers or even the same marker at different times.   To strive to ensure fairness and enhance marking reliability, HKEAA has in place a system of quality assurance in marking, which covers the procedures of marker recruitment and training, script allocation, preparation of marking schemes, marking, checkmarking and moderation of marks.

Recruitment and training of markers

13.   Markers are mostly practising secondary teachers or professors and lecturers from tertiary institutions. All markers, whether new or experienced, need to be trained and standardised at the Markers' Meeting for individual papers before commencing the marking of live examination scripts.   Markers need to mark sample scripts and show that they have mastered the assessment criteria and standards before they are qualified to mark live scripts.   They are supervised by Chief or Assistant Examiners who provide support and monitor their performance.

Script allocation

14.   Each marker is allocated with scripts from different centres/districts, so that each batch represents a cross-section of the whole candidature of the subject concerned.   This arrangement enables comparisons to be made between markers in terms of mean marks and standard deviations, and provides useful data for identifying problematic markers and determining mark moderation. The markers will not be allocated scripts of their own students.

15.   To prevent markers from marking the scripts of their close relatives, each marker is required to declare, at the stage of appointment, whether he/she has any close relatives (including spouses, children, brothers and sisters) taking the subject/paper and to provide relevant details (name, ID card number and relationship) if he/she does.   Based on such information, HKEAA staff will remove any scripts concerned from the marker's batch and re-allocate them to another marker.

Marking, checkmarking and mark moderation procedures

16.   The quality assurance procedures for marking comprise the following steps:

(a) *Preparation of marking scheme*
At the stage of setting and moderation of question papers, the marking scheme is drafted as a guide on how marks should be awarded. It enables markers to understand the requirements of individual questions, mark allocation, and the range of acceptable responses. After the examination has taken place, this document will be amended with reference to some live scripts, and then issued for use by every marker, so that differences arising from marker idiosyncrasies are minimised.

(b) *Selection and utilisation of sample scripts*
After the examination has taken place, the examiners will select sample scripts for marking to illustrate different approaches in candidates' responses. These samples provide useful material for standardising marking and monitoring marking consistency.

(c) *Examiners' Meeting*
The examiners will hold a meeting where they will compare marks they have awarded to the sample scripts, agree on marking principles and standards, and revise the marking scheme to accommodate approaches not anticipated at the stage of moderation.

(d) *Markers' Meeting*
After the examiners' meeting, a Markers' Meeting will be held where the examiners brief markers on the assessment objectives and demands of individual questions as well as how marks should be awarded. Some of the samples scripts are trial marked by the markers before or during the Markers' Meeting with a view to identifying and rectifying any discrepancies in interpreting the marking scheme, which may be further revised

if necessary.

(e) *First checkmarking*
A couple of days after the Markers' Meeting, markers are required to submit to the examiner a number of sample scripts and live scripts (usually 10-20) for first checkmarking. They will *not* be allowed to proceed with the marking until after they have received confirmation from the examiner that their marking is satisfactory.

(f) *Second checkmarking*
Marking consistency among markers is monitored by means of second checkmarking. This takes place about halfway through the marking period, after markers have returned approximately half of their batch of scripts. A specific number of scripts of different mark ranges are randomly selected from each marker's batch and checkmarked by the examiner. Where marking is found to be unsatisfactory, remedial actions will be taken (e.g. briefing the marker and then asking him/her to remark all scripts or retrieving all his/her scripts and redistributing them to other markers).

(g) *Third checkmarking*
After the markers have returned their final batches of scripts, the examiner may, in light of markers' statistics and/or problems spotted at earlier checkmarking stages, select scripts for further checkmarking, with a view to determining whether remedial action is necessary.

(h) *Addition checking*
The HKEAA employs a team of university undergraduates to scrutinise each and every page of answer scripts to check for addition errors or unmarked pages. Any problem scripts spotted are passed to the standby remarker for supplementary marking. This step is not required for subjects adopting onscreen marking.

(i) *Additional control for scripts marked onscreen*
For subjects adopting onscreen marking, in addition to checkmarking by Chief and Assistant Examiners, markers' performance is monitored by means of control scripts which are scripts with standard scores pre-determined by the examiners. These are distributed randomly among the live scripts to check whether the scores awarded by the markers tally with the standardised scores. Markers whose scores deviate beyond the pre-determined range of standardised scores will be disqualified

and have to go through training and qualifying stages again before they are allowed to resume marking live scripts.

(j) *Moderation of marks*
When markers' statistics and inter-paper correlation statistics are available, the M-AD will study them in conjunction with the checkmarking records. Where a marker's marking deviates from that of the whole-group, or where the checkmarking records suggest the possibility of problematic marking, the examiner will carry out additional checkmarking of scripts selected from the marker's last batch. Based on this checkmarking result and all available statistics, the examiner will decide whether the marks need to be moderated to ensure consistency in marking standards and hence fairness to all candidates. In cases of erratic marking or extreme deviations from the whole-group statistics, the whole or part of the marker's batch will be redistributed to other markers for remarking.

Performance management of examination personnel

17.   HKEAA attaches great importance to the performance of examination personnel which will affect the quality and reliability of the examination services.   At the end of the question paper development process, the M-AD and the Chief Examiner will submit a Report on the Work of Question Paper Checking and Proofreading and to evaluate the performance of the examination personnel involved in the checking and proofreading work. The Chief Examiner's performance is evaluated by the M-AD concerned. Only examination personnel with satisfactory performance will be re-appointed.   During the marking period, the performance of markers is closely monitored and their appointments may be terminated with immediate effect in the rare cases where markers fail to comply with instructions and regulations.   Reports on marking reliability are generated after the completion of marking.   Reductions in payment are imposed for late submission of scripts and excessive addition errors for manually marked papers.   Only markers with satisfactory performance will be re-appointed.

18.   The performance of the full time staff of HKEAA is monitored by their supervisors under the HKEAA staff performance management system where performance not meeting expectations will be reflected in performance appraisal reports.   Unsatisfactory performance will result in disciplinary actions such as verbal/written warning, stoppage or deferment of increment, termination of service and dismissal, depending on the seriousness of the situation.

Continuous improvement and quality assurance

19.   The HKEAA will continue its effort to strive for professional and operational excellence.   All examination processes including the quality of the question papers will continue to be assured by a variety of measures and procedures which conform to ISO requirements.   Internal audits are carried out every year to ensure compliance with procedures and guidelines in addition to the annual post-mortem review conducted by relevant Subject Committees to ensure the validity and reliability of the question papers and to suggest ways for further improvement.

20.   With effect from the 2008 examination, the quality assurance measure of examination papers has been further enhanced by the introduction of the Examination Paper Quality Audit (EPQA).   Examination papers are audited with respect to their psychometric properties by the Authority's Assessment Technology and Research Division (ATRD).   According to the preliminary examination quality assurance framework introduced in early 2009, the examination questions will be reviewed from a psychometric perspective.   The quality of the examination paper, the merits of the items used and the appropriateness of the marking schemes of the examination are evaluated.   The results of the evaluation will be used for improvement of future examination papers so that the standard of the qualifications the Authority confers is guaranteed.

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