

Hong Kong Examinations and Assessment Authority
Hong Kong Certificate of Education Examination 2009
Computer and Information Technology Paper 3 (Coursework)

Module A (Algorithm and Programming): Multiple-Choice Analysis Report

An inter-school mathematics competition, in the form of multiple-choice questions, has been organised. The answer sheets for participants will be read by using an Optical Mark Recognition (OMR) system, and the options selected were converted into a text file.

Imagine you are a programmer. You are going to develop a computer program to read all raw text-based data and produce a detailed analysis report on the competition. The analysis report should include:

- Total number of participants, total number of participating schools and total number of participant(s) from each participating school
- Winners of individual awards and school awards
- Question analysis, such as the percentage correct for each question

Candidates are required to write a program to generate the analysis report. The coursework should:

- Describe the required plain text data files, including the keys of the multiple-choice questions and their format
- Define the competition regulations, such as individual awards and school awards
- Display a clear analysis report

Candidates should be aware of the reusability of the program design and justify the use of any data structures and algorithms in the implementation.

Module B (Organisation of Computer): Selection of Computer Systems

The Parent-Teacher Association (PTA) of a school wants to suggest that parents of Form 1 students buy a particular computer system for their children. The computer system will be used for study and home entertainment. You are going to do some research and recommend to the PTA a computer system that is powerful enough for these uses, and cost effective.

Candidates are required to:

- (1) Produce a list of the potential uses of the intended computer system, including Internet connectivity and the creation and editing of multimedia elements, with justifications;
- (2) Produce a list of essential system and application software and state the functions/purposes of each item in the list;
- (3) Collect computer system information from the market and produce a summary of essential configurations of more than five models;
- (4) Include the details of essential hardware accessories, their functions and price performance evaluations.

Candidates are required to recommend a model from (3) and justify the recommendation.

Module C (Data Communications and Networking): Computers, Mobile Devices and Network Services for School Athletic Day

A school is going to organise an Athletics Day at a sports field outside school. The school decides to use computers and mobile devices to form a LAN for ‘student attendance taking’, ‘event results recording’ and ‘instant communication’. Computer programs for these functions are available and will be installed in computers and/or mobile devices on site. Once the network connection is ready, the relevant information can be recorded and/or retrieved through the network.

The following issues may need to be considered:

- Type and functionality of different mobile devices
- Location and distribution of Access Points
- Data security and access control
- Types of network connection
- Cost of setting up the network
- Limitations of the network design
- Other special network requirements

Candidates are required to define the scenario of the Athletics Day and design its network environment. Documents such as clear user instructions, simple fault diagnostic flow charts, site testing plan and checklists could be included, if appropriate.

Module D (Multimedia Production and Web Authoring): Social Networking Web Site

Web 2.0 is a popular term describing the trend for users to be more actively involved in contributing web content. Web developers were once the sole content providers for web sites. Nowadays, some sites provide a community platform for users to publish content and interact with each other. Social networking web sites, web encyclopedias and video/photo sharing web sites are some examples of such sites.

A school wants to set up a social networking web site for its alumni. Candidates are required to make a proposal to the school with the following requirements.

- (1) Compare the major features provided by two existing social networking web sites. Discuss the corresponding design factors that encourage users to use the functions provided by the web sites.
- (2) Design and create the layout of some web pages of the web site using HTML. The layout should include at least five social functions which facilitate communication among the alumni. Multimedia elements and user-friendly access mechanisms should be considered to attract more alumni to visit the web site.

Suggested time allocations for Part (1) and Part (2) are 40% and 60% respectively.

END OF PAPER