

Hong Kong Examinations and Assessment Authority
Hong Kong Certificate of Education Examination 2010
Computer and Information Technology Paper 3 (Coursework)

Module A (Algorithm and Programming): Phone book directory

Candidates are required to implement a phone book directory program to store names, telephone numbers, email addresses as well as other useful personal information. The program should allow entries to be listed in different ways.

Candidates should also develop a search engine which locates particular entries by inputting different search criteria.

Candidates should demonstrate that they are 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): Using Mobile Computing Devices in Education

A secondary school receives a donation of funds to develop mobile computing for the learning and teaching of **one** subject. You are going to do some research and propose suitable mobile computing devices.

Candidates are required to:

- (1) Research the development of mobile computer devices and their impact on education;
- (2) Produce a list of essential features and application software of the devices and state their functions/purposes with regard to the subject to be learnt;
- (3) Discuss the characteristics of different mobile computer devices, such as input mechanisms, computing power and storage capacity;
- (4) Collect information on mobile computing devices and produce a summary of the essential configuration of three or more distinct mobile computing devices;
- (5) Documents detailing essential hardware accessories, their functions and price performance evaluations should be included, if appropriate.

Module C (Data Communications and Networking): Wireless Robot Competition at Science and Technology Learning Centre

A school is going to organise a wireless robot competition at its Science and Technology Learning Centre (STLC). The STLC is equipped with robots as mobile devices, desktop computers and notebook computers to form a LAN which provides the following services:

- computer setting which allows for the programming of individual robots through student network accounts
- sharing of programming data stored in a disk drive
- transmission of computer programs to the robots through Wi-Fi

Each robot can be thought of as a mobile device using TCP/IP for communication. The following issues may need to be considered:

- IP address management
- Data security and access control
- Types of network connection
- Limitations of the network design
- Other special network requirements

Candidates are required to design a network environment for the competition. Documents such as clear user instructions, simple fault diagnosis flow charts, site testing plan and checklists could be included, if appropriate.

Module D (Multimedia Production and Web Authoring): E-learning

E-learning is an approach in which computer and information technology is applied to support learning. Nowadays, an increasing number of schools are adopting this approach to enrich the learning and teaching environment. Textbooks are no longer the only medium for transferring knowledge to students. E-learning packages usually include a graphical user interface for browsing through informative content, animations and games for interactive learning activities, and assessment tools for evaluating learning progress. It is believed that e-learning allows students to learn at their own pace.

A primary school wants to use an e-learning package. Candidates are required to make a proposal to the school with the following requirements.

- (1) Identify three examples of common features of e-learning packages and describe how the multimedia elements in these features are used to help improve learning.
- (2) Design and create the layout of a small number of pages of the e-learning package for the school using HTML. The layout should include at least three features that can help primary students learn a particular subject (e.g. English). These features should provide appropriate functions that allow students to access learning activities/exercises on the subject, and to evaluate individual progress using proper assessment tools. Multimedia elements and user-friendly access mechanisms should be considered, to make the learning more fun and attractive.

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

END OF PAPER