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SUBJECT: **Information Technology**  
DATE: 14<sup>th</sup> May 2019  
TIME: 4:00 p.m. to 7:05 p.m.

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### Directions to Candidates

Workings are considered as part of the answer and must be shown.

### SECTION A: COMPUTING PRINCIPLES

**Answer Question 1 and any FOUR other questions from this section.**

#### 1. This question is compulsory.

SPReviewer is a company that sells smartphones. Through its website, users can view Smartphone product details, post reviews and give a rating. The company maintains a database which includes a SMARTPHONE table and a REVIEW table.

- a) Identify suitable data types for each of the following fields in SMARTPHONE and REVIEW tables:
  - i) SMARTPHONE table fields: PRODUCT\_CODE, PRODUCT\_NAME, MANUFACTURER, RELEASE\_DATE, PRICE and DESCRIPTION. (3)
  - ii) REVIEW table fields: REVIEW\_ID, REVIEW\_DATE, REVIEW\_RATING, and REVIEW\_CONTENT. (2)
- b) Identify a suitable primary key for:
  - i) the SMARTPHONE table; (1)
  - ii) the REVIEW table. (1)
- c) A Smartphone record can be linked to one or more Reviews. Describe the type of relationship between the SMARTPHONE and REVIEW table. (1)
- d) What can the database programmer use to produce a report with a table showing the average rating for each month over the past year? (1)

SPReviewer is considering providing a number of high-resolution images for each product listed and displaying detailed product specifications in an HTML table. Website design and development needs to be followed by testing and quality assurance before going live.

- e) Identify a suitable file format for displaying product images on the website. Give a valid reason for your choice. (2)
- f) What is HTML? (1)
- g) Briefly describe **TWO** tests that you would include in your test plan, when designing a new website. (2)
- h) Describe a tool which web designers frequently use to perform quality assurance of a webpage's code. (2)
- i) Give **TWO** advantages of listing product specifications in tabular form rather than in paragraph form. (2)

**(Total: 18 marks)**

**Answer any FOUR of questions 2, 3, 4, 5, 6 and 7**

2. A gaming enthusiast is planning to purchase a computer system to compete in e-sports tournaments from home.

- a) Which type of computer would you recommend for the scenario described above? Explain your answer. (2)
- b) Identify and describe **ONE** input device and **ONE** output device which the computer system listed in part (a) would require in relation to gaming. (2)
- c) The gaming enthusiast is considering purchasing a modern high speed storage device.
  - i) What modern storage device do you suggest? (1)
  - ii) Briefly describe **ONE** advantage of this storage device. (1)
- d) What type of memory loses its information when the computer is switched off? What type of memory will not lose data when the computer is off? (2)

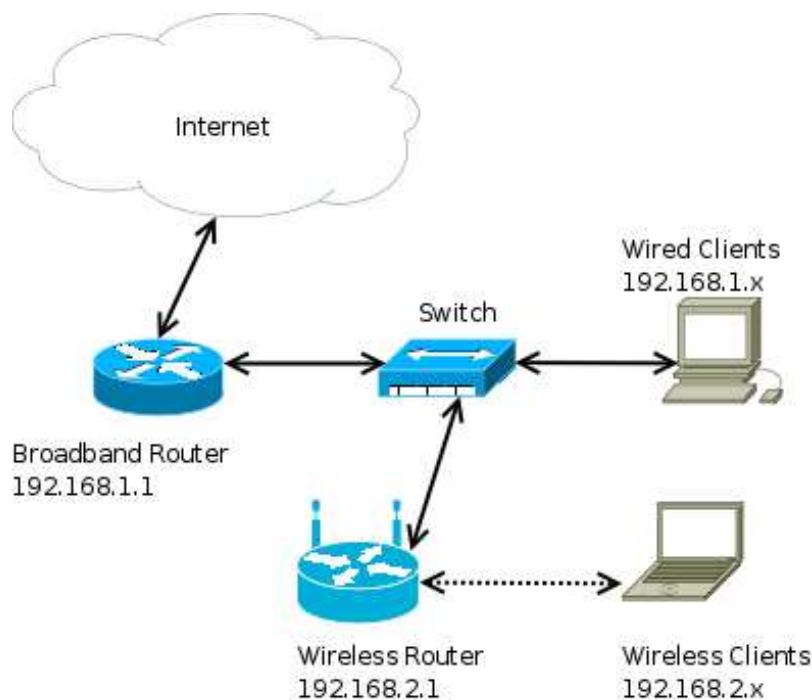
**(Total: 8 marks)**

3. Decision making is a process of making choices from alternative courses of action. Decision making can be classified in three levels.

- a) List the **THREE** levels of decision making. Briefly explain the main characteristics of each level. (6)
- b) Give **ONE** example of an Information System which aids any **ONE** of the three decision making levels listed in part (a). Briefly explain. (2)

**(Total: 8 marks)**

4. The diagram below shows the topology of a network in a small office consisting of one network to serve wired connections and a separate network for wireless clients. Both networks have access to the Internet.



- a) If the switch is considered as the central part of this network, what type of network topology is this? (1)
- b) From the diagram shown in previous page, what type of device could be used to link this network to another network having a different topology or protocol? (2)
- c) List any **ONE** component of an IP address. (1)
- d) Two laptop computers need to connect to the wireless network. With the aid of the diagram shown in previous page, give **TWO** IP addresses that can be assigned to these wireless clients. (2)
- e) Give **TWO** security related disadvantages of wireless networks. (2)

**(Total: 8 marks)**

5. a) A modern Operating System is frequently equipped with useful system related tools. Identify and explain the type of tools required for the following tasks:
- i) moving and deleting user files; (2)
  - ii) checking the utilisation of a computer's CPU. (2)
- b) Identify and briefly explain which components of the operating system can be used for the following tasks:
- i) resource allocation and scheduling; (2)
  - ii) backing up important operating system files. (2)

**(Total: 8 marks)**

6. a) How does the Internet differ from the World Wide Web (WWW)? (2)
- b) A company manager wishes to exchange messages instantly through a mobile phone. Identify and describe a typical software utility for exchanging messages. (2)
- c) A mobile phone has to be directly connected to the Internet using mobile data technology provided by a cellular provider. Give **ONE** advantage and **ONE** disadvantage of this setup. (2)
- d) What are the set of rules or procedures used for transferring of files over the Internet called? Give **ONE** example of such set of rules or procedures which is suitable for exchanging files over the Internet. (2)

**(Total: 8 marks)**

7. a) A new information system for a large shopping department is to be developed locally over a two year period.
- i) What model or approach can be used for this information system development? (2)
  - ii) List and explain any **FOUR** steps that are part of this approach. (4)
- b) Good documentation is important for the success of the project. Suggest and briefly explain any **TWO** documents that would contain this type of documentation. (2)

**(Total: 8 marks)**

***Please turn the page.***

## SECTION B: HUMAN COMMUNICATION & BUSINESS ORGANISATION

Answer question 1 and ONE other question from this section.

### 1. This question is compulsory.

Innovative is a small start-up company that provides marketing services to established companies which are interested in exploring innovative ways to promote their brand, products or services. The company makes use of both traditional visual media and modern digital marketing tools with the aim of reaching a wide audience.

- a) Why would the company still use traditional visual communications, which are **not** dependant on the Internet? Explain by giving **TWO** valid reasons. (4)
- b) Briefly explain **TWO** Internet utilities that the company could use for digital Internet marketing. (4)
- c) The company also makes use of written communication to advertise products or services. Identify and describe **TWO** main features of a written communication document that may be used for marketing purposes. (2)

**(Total: 10 marks)**

Answer ONE question from 2 and 3.

- 2. a) Modern organisations make use of systems and software to help users. Give the name of such a system and explain briefly. (2)
- b) List and explain any **TWO** physical documents that can be used to support users. (4)
- c) List and explain any **TWO** Internet utilities or tools that are useful for supporting user problems. (4)

**(Total: 10 marks)**

3. A company experiencing fast growth is being advised to restructure its Human Resources and Finance functional areas of management.

- a) Describe the function of the Human Resources and the Finance functional areas. (4)
- b) Give **TWO** reasons why a fast growing company needs to give special attention to Human Resource Management. (2)
- c) Due to the company's growth, the management is seeking to introduce a new information system. Identify and briefly describe any **TWO** factors that the management needs to consider when implementing this change. (4)

**(Total: 10 marks)**