Shrewsbury School

SHREWSBURY SCHOOL

SIXTH FORM ENTRANCE EXAMINATION 2014

COMPUTING AND ICT

(1 hour)

Instructions to candidates:

- Section A: Structured short-answer questions – answer **both** questions

- Section B: Extended Writing Section – **choose 3** out of 5 possible topics

Section A. Structured short-answer questions.
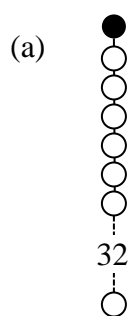
Attempt both questions.

1.   An athletics club is organising a track and field competition for their local area.

   a)   Suggest a standard 'office' application which would be suitable for organising the scoring system for the event.   [1]

   b)   Describe 3 features of the above application that would be useful.   [3]

   c)   Competitors pre-register for their event using a form on the club's website

      i)   List the 5 most important items of data that you think should be submitted by applicants using the form.   [5]

      ii)   Sketch out your design for the form. Include the 5 items listed in (i) and any extra that you feel are relevant. Include a suitable heading and instructions that should appear on the form.   [5]

2.   A class has 39 students. Alternative phone lists shown below are used to pass along messages from the teacher (black circle) to students (white circles). Lines connect each person with the people that they must pass the messages to.
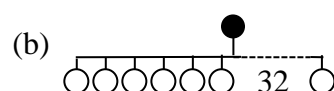
   Each phone call lasts three minutes. Each person can only talk to a single person on the phone at a time.

   In diagram (a) the teacher starts the chain, and then each student calls the next until the last student is called. In diagram (b) the teacher calls each student, one by one.
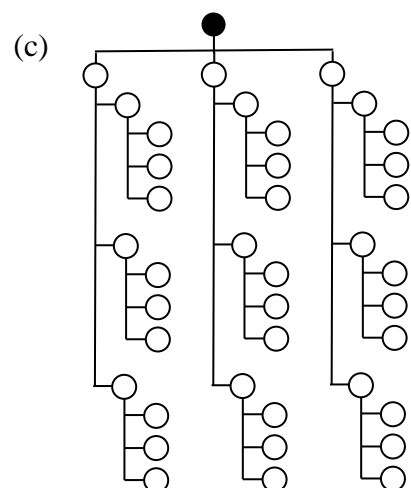
   When the teacher starts the first phone call to announce a message, how many minutes go by until the message is completely delivered to all 39 students in each case? Write your answer clearly next to each diagram.

(a)   (b)   32   (c)

[1]   [1]   [3]

   d)   Draw or describe an alternative arrangement that will result in a shorter time to deliver all the messages. State the new, shorter time for this arrangement.   [4]

Section B. Extended writing section.

Choose 3 out of the 5 possible topics. You are expected to write about one side for each. You can write in sentences, or a list might be more appropriate for some questions.

1. Two possible methods that can be used by a company to allow its customers to interact with its products and services are: an 'app' for a tablet; and a website? Discuss the differences between the two methods; highlight any advantages and disadvantages.

2. When choosing a mobile phone you are given 3 choices of operating system: Android; iOS; or Windows. Assuming that you are comparing 3 top of the range smartphones of these types make your choice explaining your reasons.

3. 'Big Data' is a term used to describe the commercial use of our personal data by organisations. What do we mean by personal data? Give examples of how this data becomes valuable. What can we do to keep control of our data? Discuss the issues.

4. Explain what a computer virus is? Your answer should include:
   - Some of the effects and consequences of viruses
   - Different ways that viruses spread from computer to computer
   - What measures can be taken to protect computers
   - What are possible consequences for those who create viruses

5. "Wearable IT devices have the potential to improve our health."

   How might this be possible? Are there any examples that already achieve health benefits? Can you think of future developments that will revolutionise this area? What are the risks, or disadvantages for society? Present your arguments for or against this statement.

[15 marks each]

[Total marks 68]