88075511

IB DIPLOMA PROGRAMME
PROGRAMME DU DIPLÔME DU BI
PROGRAMA DEL DIPLOMA DEL BI

INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY
HIGHER LEVEL AND STANDARD LEVEL
PAPER 1

Friday 16 November 2007 (afternoon)

1 hour

Candidate session number

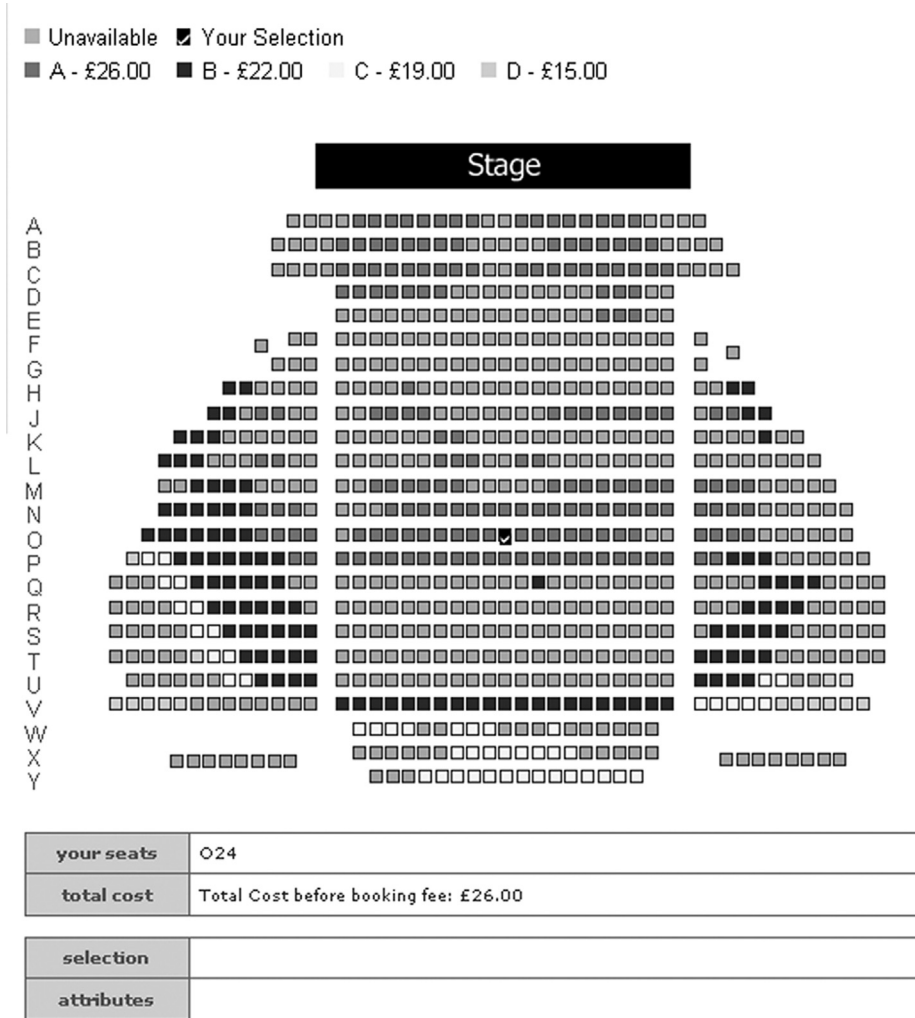|								
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INSTRUCTIONS TO CANDIDATES

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all the questions in the spaces provided.

1. Many theatres have online booking systems so that people can choose events, performances and seats from what is available, then purchase tickets online. In some systems, a diagram shows the seats available for a performance and the user clicks on the seats required. The system calculates the cost of the tickets and the user then pays by credit card transaction. The details of the credit card are entered by the user and are validated. The tickets are then sent by post.

[Source: http://www.birminghamhippodrome.com/]

(a) The credit card number 1325657498570988 is entered by a customer. Identify **two** validation checks that can be performed on this number. *[2 marks]*

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(This question continues on the following page)

(Question 1 continued)

(b)   Describe **two** ways that a customer can be sure that the credit card transaction
       is secure.   *[4 marks]*

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(c)   Explain why a customer might prefer to book theatre tickets online.   *[4 marks]*

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2. When a movie film is digitised and transferred onto a DVD, the data is compressed. Data compression is also commonly used in MP3 players and digital television transmissions.

(a) Define the term *data compression*. [2 marks]

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(b) Describe the process of digitising an image. [4 marks]

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(Question 2 continued)

    (c)   Explain why data compression is used when transferring a movie to a DVD.   *[4 marks]*

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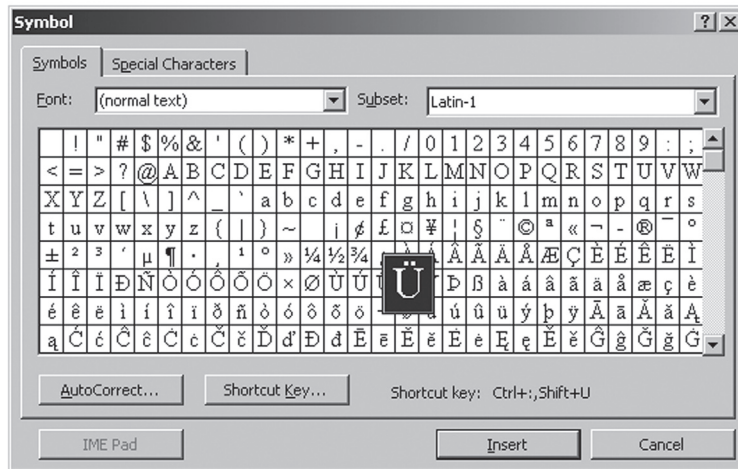. . . . .

3. When a document is typed using a word processor, it is possible to insert a wide variety of symbols from many different languages. The resulting document can be saved in various file formats such as RTF, text or PDF.

A passage was typed in Greek and saved as an RTF file. When viewed in a word processor, it appeared as below:

Μπορεί οι διαδηλώσεις των εργαζομένων
και οι διαμαρτυρίες των οπαδών του
ΠΑΟΚ να διεκδίκησαν τις εντυπώσεις από
τις γενικόλογες εξαγγελίες του
πρωθυπουργού στη ΔΕΘ.

When saved as a text file, and re-opened, it appeared like this:

?p??e? ?? d?ad???se?? t?? e??a??µ????
?a? ?? d?aµa?t???e? t?? ?pad?? t??
???? ?a d?e?d???sa? t?? e?t?p?se?? ap?
t?? ?e???????e? e?a??e??e? t??
p????p?????? st? ??T.

(a) Identify **two** coding systems used to store characters in computer files. *[2 marks]*

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(This question continues on the following page)

(Question 3 continued)

(b)   Describe **two** ways that a Rich Text Format (RTF) file differs from a text file.   *[4 marks]*

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(c)   Explain why the PDF format is often chosen to send documents between
      computers.   *[4 marks]*

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4. When customers visit a supermarket, they do not expect to wait in checkout queues for too long, however the supermarket manager cannot afford to have all the checkouts open all of the time.

In an attempt to solve the problem the supermarket manager may decide to make a computer model using a spreadsheet to calculate the optimum number of checkouts that should be open at any time.

(a) Define the term *computer model*. *[2 marks]*

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(b) Describe **two** inputs into the model that would be needed in order to calculate the best number of checkout operators. *[4 marks]*

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(This question continues on the following page)

(Question 4 continued)

(c)   Explain why this or any other computer model may not give accurate results.   *[4 marks]*

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