



北京邮电大学

For examiners' use only

EBU5305 A

Joint Programme Examinations 2016/17

EBU5305 Interactive Media Design and Production

Paper A

Time allowed 2 hours

Answer ALL questions

1	
2	
3	
4	
5	
6	
7	
8	
Total	

Complete the information below about yourself very carefully.

QM student number

BUPT student number

Class number

NOT allowed: electronic calculators and electronic dictionaries.

INSTRUCTIONS

1. You must not take answer books, used or unused, from the examination room.
2. Write only in black or blue pen and in English.
3. Do all rough work in the answer book – **do not tear out any pages.**
4. If you use Supplementary Answer Books, tie them to the end of this book.
5. Write clearly and legibly.
6. **Read the instructions on the inside cover.**

Examiners

Dr Marie-Luce Bourguet, Dr Yizhe Song

Instructions

Before the start of the examination

- 1) Place your BUPT and QM student cards on the corner of your desk so that your picture is visible.
- 2) Put all bags, coats and other belongings at the back/front of the room. All small items in your pockets, including wallets, mobile phones and other electronic devices must be **placed in your bag in advance. Possession of mobile phones, electronic devices and unauthorised materials is an offence.**
- 3) Please ensure your mobile phone is switched off and that no alarm will sound during the exam. **A mobile phone causing a disruption is also an assessment offence.**
- 4) Do not turn over your question paper or begin writing until told to do.

During the examination

- 1) You must not communicate with or copy from another student.
- 2) If you require any assistance or wish to leave the examination room for any reason, please raise your hand to attract the attention of the invigilator.
- 3) If you finish the examination early you may leave, but not in the first 30 minutes or the last 10 minutes.
- 4) For 2 hour examinations you may **not** leave temporarily.
- 5) For examinations longer than 2 hours you **may** leave temporarily but not in the first 2 hours or the last 30 minutes.

At the end of the examination

- 1) You must stop writing immediately – **if you continue writing after being told to stop, that is an assessment offence.**
- 2) Remain in your seat until you are told you may leave.

Question 1

- a) In the design process studied in class, what are the three steps of the presentation phase? Explain them briefly.

[5 marks]

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	5 marks

- b) Mind maps.

[10 marks]

- i) Consider the following statement: “In interactive media design, mind maps are used as a visual thinking tool that helps determining the style of an application”. Do you agree with this statement? Justify your answer.

(5 marks)

- ii) Consider the mind map shown in Figure 1. In your opinion, what are the purpose and target audience of the interactive media application this mind map has been drawn for?

(5 marks)

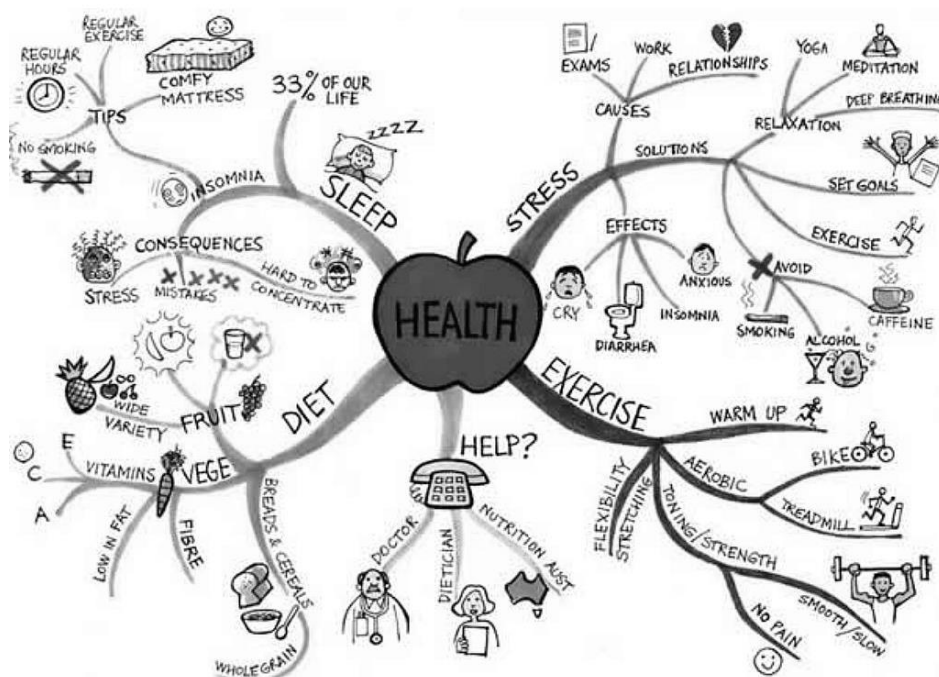


Figure 1

[illegible]

c) You have been asked by the Beijing Tourist Information Centre of the Haidian district (where most Universities, including BUPT, are located) to design an interactive media application dedicated to students leaving in the area.

[10 marks]

- i) One of your first tasks is to gather information about your target audience. What is it you need to find out?
(5 marks)
- ii) Explain how writing a storyboard can help you design your interactive media application.
(5 marks)

[illegible]

Question marking: $\frac{5}{5} + \frac{\quad}{10} + \frac{\quad}{10} = \frac{\quad}{25}$

Question 2

a) Design and human cognition.

[9 marks]

i) Why is human memory said to be limited in capacity?

(3 marks)

ii) How can “information chunking” increase memory capacity? Provide an example.

(3 marks)

iii) Why is recognition easier than recall?

(3 marks)

	Do not write in this column	
		9 marks

b) Use of media.

[12 marks]

- i) Apart from improving aesthetics, give three other possible uses of colours in interactive media design.

(6 marks)
- ii) Explain the differences between the following three types of colour association: “built-in”, cultural and work association. Provide examples.

(6 marks)

[illegible]

[4 marks]

[illegible]

Question marking: $\frac{-}{9} + \frac{-}{12} + \frac{-}{4} = \frac{-}{25}$

Question 3

a) Digitisation.

[10 marks]

- i) What is the mathematical transformation that allows the extraction of the individual frequency components of a complex waveform?
(1 mark)
- ii) In the digitisation process, what is the Nyquist theorem useful for?
(1 mark)
- iii) Calculate the size in bits of a grayscale image file, which has the following characteristics: frame size is 150 pixels x 100 pixels.
(2 marks)
- iv) Calculate the size in bytes of a video file, which has the following characteristics: frame size is 300 pixels x 200 pixels, true colour encoding, frame rate is 30 frames/s, no audio track, duration is 2 minutes.
(3 marks)
- v) Calculate the size in bytes of an audio file, which has the following characteristics: CD quality, duration is 1 minute.
(3 marks)

[illegible]

	10 marks
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b) Colour.

[6 marks]

- i) What (R, G, B) values would you use to encode a light grey pixel? Justify your choice of values.

(3 marks)
- ii) What (C, M, Y, K) values would you use to encode a fully saturated dark red colour? Justify your choice of values.

(3 marks)

[illegible]

d) What can you say about the content of an MPEG video that contains very few I frames? Justify your answer.

[5 marks]

	Do not write in this column
	5 marks

Question marking: $\frac{1}{10} + \frac{1}{6} + \frac{1}{4} + \frac{1}{5} = \frac{1}{25}$

Question 4

- a) Answer the multiple choice questions below by entering your choice (A, B, C or D) in the dedicated space (the small square that appears at the bottom right of each question). For each question, make only one choice.

[10 marks]

- i) Consider Heuristic H2 (match between system and real world). Which good design below complies best with H2?

(2 marks)

- A. Navigation buttons are always located at the top of every page.
 B. The image of a closed envelope is used to indicate a new email.
 C. Short cuts are provided for expert users.
 D. Users can undo their actions at any time.

☐

- ii) Consider Heuristic H3 (user control and freedom). Which good design below complies best with H3?

(2 marks)

- A. Mandatory fields are clearly indicated in the form.
 B. A list of all possible options is provided in a list.
 C. Users can undo their actions at any time.
 D. A progress bar is provided to show downloading time.

☐

- iii) Consider Heuristic H4 (consistency & standards). Which good design below complies best with H4?

(2 marks)

- A. Users are notified when the caps lock key is on.
 B. A progress bar is provided to show downloading time.
 C. A list of all possible options is provided in a list.
 D. Navigation buttons are always located at the top of every page.

☐

- iv) Which of the following usability problems violates most Heuristic H5 (error prevention)?

(2 marks)

- A. The exit button is coloured green.
 B. Users are not notified about file downloading time.
 C. Users cannot undo their actions.
 D. The front page has no title.

☐

- v) Which of the following usability problems violates most Heuristic H9 (help users recognize and recover from errors)?

(2 marks)

- A. There is a horizontal scroll bar.
 B. Users cannot undo their actions.
 C. The logo of the company is animated on every page.
 D. The front page has no title.

☐

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		10 marks

- b) Consider the following ten usability heuristics: (UH1) Visibility of system status; (UH2) Match between system and real world; (UH3) User control and freedom; (UH4) Consistency and standards; (UH5) Error prevention; (UH6) Recognition rather than recall; (UH7) Flexibility and efficiency of use; (UH8) Aesthetic and minimalist design; (UH9) Help users recognize and recover from errors; (UH10) Help and documentation.

For each of the usability problems described below, select one (and only one) corresponding heuristic.

[10 marks]

- i) The way the zooming factor on a map is represented is obscure.

(2 marks)

- ii) It is not apparent from the screen how one quits the system.

(2 marks)

- iii) The user should not be required to click outside the text entry box before changes can take effect.

(2 marks)

- iv) Shortcuts should be provided for the most common user actions.

(2 marks)

- v) The error message “unknown map coordinates” is not precise.

(2 marks)

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		10 marks

c) Consider the dialogue window shown in Figure 3.

[5 marks]

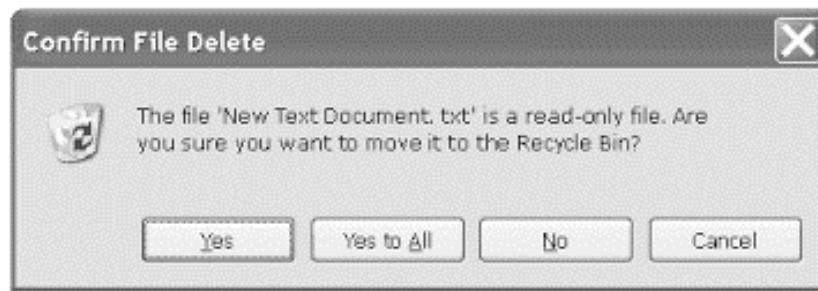


Figure 3

i) Describe the usability problem and suggest a heuristic it violates.

(3 marks)

ii) Suggest a solution.

(2 marks)

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Question marking: $\frac{1}{10} + \frac{1}{10} + \frac{1}{5} = \frac{1}{2.5}$

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Page 16 of 20

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2016-2017
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Page 17 of 20

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2016-2017
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Page 18 of 20

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2016-2017
Rough Working
Page 19 of 20

2016-2017
Rough Working
Page 20 of 20