

# Review Questions

November 6, 2014

## 1 History of Computer

1. What is the basic function of a computer?
2. In the ancient China, there had already had computing machine. Give example.
3. In the 19 century, there had already had mechanical computing machine. Give examples.
4. What is the contribution of Thomas Edison in the history of computer?
5. In the earlier 20 century, the electronic computer was invented. What invention(s) made it happen?
6. In the earlier 20 century, an Englishman laid down the foundation theory for a computer. What is the name of this Englishman?
7. During the World War II, which countries in the world have a computer?
8. During the World War II, which country successfully broke the encryption code of the German messages?
9. John Mauchly and J. Presper Eckert founded the first computer firm in US aiming to make the first commercial computer. However, their computer firm bankrupted and finally the project had to be transferred to other firm to continued. What main reason makes Mauchly and Eckert fail to do so?
10. What is the name of the first commercial computer in US?
11. Which company finally made the first commercial computer in US?
12. What is the name of the first commercial computer in UK?
13. Which company made the first commercial computer in UK?
14. When did IBM enter the computer business and who was the main driver?
15. What are the social effects of using computers in factory and office automation?
16. When did Apple design the first personal computer?
17. Which technology is the main driver for making personal computer?
18. When the mouse was designed and who designed it?
19. What is ALTAIR 8800 and when did it appear in the market?
20. What is the contribution of Xerox in the evolution of computer?
21. When did IBM design the first personal computer and why it failed?
22. What was the major problem in the first generation personal computers?
23. What are the main features of Macintosh as compared with other personal computers in 1984?
24. What are the technological advancements, both in hardware and software, from the first generation electronic computers to the era of personal computers?
25. What is program?
26. How disable persons can be benefited from the computer technologies?

27. Nowadays, computers are used in almost everywhere. Give examples showing in which places or which machines computer has been installed.
28. Nowadays, each computer can only have one CPU? True/False?
29. Nowadays, each smartphone (iPhone6 for example) can only have one CPU. True/False?
30. A smartphone (iPhone6 for example) is a combination of a computer and a telephone. True/False?
11. By management level, one could classified information systems into four types, namely transaction processing system, management information system, decision support system and executive information system. Which type of information systems is the key information system within an organization?
12. In which year, the US government started a project called APARNET? What is the main purpose of this project?
13. In which year, the protocol for Internet has been finalized?

## 2 Information Systems

1. In accordance with Loudon & Loudon (2004), what is the definition of an information system?
2. Without electricity, computer and Internet, it is not possible to have an information system. True/False?
3. Without computer, it is not possible to have an information system. True/False?
4. What is the role of information technologies in an information system?
5. Give the names of five important information technologies that we are using nowadays?
6. What factor determines the function of an information system?
7. What is the main purpose of programming language?
8. Give the names of three commonly used programming languages that we are using nowadays?
9. Nowadays, almost every notebook computer has a database system. What is the name of this database system?
10. Give the names of three commonly used operating systems that we can find in a computer?

14. In which year, US released the right to register domain name to the public?
15. Which technologies are the keys for building an enterprise information system that can connect a company with its suppliers and customers?
16. Give a few examples of enterprise information system.

## 3 E-Commerce

1. The business model of Travelocity is called C2C. True/False?
2. The business model of eBay is called C2C. True/False?
3. What is the business model of Alibaba?
4. What is the business model of 7Net?
5. Skype is an e-commerce firm or a technology firm?
6. Google is an e-commerce firm or a technology firm?
7. To access to a website, one needs to have a browser in his/her computer. Give the names of three common browsers that you can find in a computer.
8. What are the services provided by Travelocity?

9. Dragon Air, Citibank and DHL, all of them have their own websites. What are the functions of these websites in helping their businesses?
19. What is the value of '00101010' in decimal form?

## 4 Digital Systems

1. A notebook computer, the Internet and a CPU, all of them are digital systems. True/False?
2. The basic building block in any digital system is the logic gate. True/False?
3. Give the names of four common logic gates.
4. What is the truth table of XOR gate?
5. What is the truth table of a half adder?
6. What is the truth table of a full adder?
7. Design a half adder simply by AND gate and XOR gate.
8. Design a full adder by two half adder and a OR gate.
9. Design an AND gate using XOR gates only.
10. Design an AND gate using NAND gates only.
11. Design an OR gate using NAND gates only.
12. Design an NOR gate using NAND gates only.
13. Design an XOR gate using NAND gates only.
14. Using NAND gates only, design a digital circuit which can perform the logic function  $Z = AB + CD$ .
15. What are the bases for a binary number with eight digits?
16. What is the value of '10000000' in decimal form?
17. What is the value of '10101001' in decimal form?
18. What is the value of '11011011' in decimal form?
20. What is the value of '11111111' in decimal form?
21. What are the bases for a binary number with sixteen digits?
22. What is the value of '1000000000000000' in decimal form?
23. What is the value of '1111111111111111' in decimal form?
24. What is the largest number (in decimal form) of a binary number with thirty-two digits?
25. What is the largest number (in decimal form) of a binary number with sixty-four digits?
26. Convert the decimal number  $122_{10}$  to 16-bits binary number and then convert this binary number to hexadecimal number.
27. Convert the decimal number  $122_{10}$  to 8-bits binary number and then convert this binary number to hexadecimal number.
28. Convert the decimal number  $122_{10}$  to 4-bits binary number and then convert this binary number to hexadecimal number.
29. Convert the decimal number  $-13_{10}$  to 8-bits 2's complement.
30. Convert the decimal number  $-1324_{10}$  to 16-bits 2's complement.
31. What is the minimum number that can be represented by using 8 bits and 2's complement formate?
32. In the question, the binary number is of 8-bit formate.
  - (a) Convert  $20_{10}$  into binary number.
  - (b) Represent  $-12_{10}$  2'S complement.
  - (c) Show the steps of obtaining the value of  $20_{10} - 12_{10}$ .
33. In the question, the binary number is of 16-bit formate.

- (a) Convert  $20_{10}$  into binary number.
  - (b) Represent  $-12_{10}$  2'S complement.
  - (c) Show the steps of obtaining the value of  $20_{10} - 12_{10}$ .
34. In the question, the binary number is of 16-bit formate.
- (a) Convert  $58_{10}$  into binary number.
  - (b) Represent  $-78_{10}$  2'S complement.
  - (c) Show the steps of obtaining the value of  $58_{10} - 78_{10}$ .
  - (d) Convert the answer in (c) in sign-magnitude form.
35. What are the ASCII codes of the characters '0', '1' and '2'? What are their bit patterns?
36. In the ASCII code table, there are many strange characters like codes from number 128 to 159. What are the reasons why we need to consider these characters?
37. In the ASCII code table, what is the purpose to have the strange characters from code number 176 to code number 178?
38. In accordance with ASCII code, each English character is represented by 8 bits. For Chinese characters, is it also represented by an 8 bits formate?