

# Introduction to Computer Science: Class Test I

September 25, 2020. 9:30 - 11:00

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**Instructions:** In this test paper, there are four sections. Section A consists of ten MC questions (Question 1 to Question 10). Each carries 2 marks. You have to answer all of them. The questions in Section B (Question 11 to Question 14), Section C (Question 15 to Question 18) and Section D (Question 19 to Question 22) are descriptive questions. Each question carries 10 marks. You need to select and answer altogether eight questions from these three sections. **But, there is one restriction. For each section, you have to select and answer at least two questions and at most three questions. If you answer more than three questions in a section, the extra question will not be marked.**

That is to say, (i) you can select three questions from Section B, three questions from Section C and two questions from Section D. (ii) You can select three questions from Section B, two questions from Section C and three questions from Section D. (iii) You can select two questions from Section B, three questions from Section C and three questions from Section D.

Put down all your answers on the answer book. If one answer book is not enough for your writing, you can ask for more answer books.

**Reminder: Beware of spelling mistake and careless mistake!**

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## Section A: MC Questions

### Question 1

In ancient China, there was a simple tool for use in computing. What is the name of it?

- (a) Balloons
- (b) Abacus
- (c) Candles
- (d) Sticks

### Question 2

In UK, which company successfully built the first commercial computer?

- (a) J. Lyon and Company
- (b) LEO Technology
- (c) IBM
- (d) ENIAC Corporation

### Question 3

Who invented the vacuum tube in 1904?

- (a) Thomas Edison.
- (b) Alan Turing.
- (c) John Ambrose Fleming.
- (d) John von Neumann.

### Question 4

Which of the following statements are true?

- (i) Without electricity, no information system can be used.
- (ii) Without computer, no information system can be built.
- (iii) The functional requirements of an information system are determined by the business operations of an organization.
- (iv) Information technology is a collection of technologies which can be applied in building an information system.

**Answer:**

- (a) (i) and (ii) only.
- (b) (i) and (iii) only.

- (c) (i) and (iv) only.
- (d) (ii) and (iii) only.
- (e) (ii) and (iv) only.
- (f) (iii) and (iv) only.

### Question 5

Which of the following item(s) has(have) a computer installed?

- (i) Aeroplane
- (ii) Spaceship
- (iii) High speed railway

**Answer:**

- (a) None of them.
- (b) (i) only.
- (c) (ii) only.
- (d) (iii) only.
- (e) (i) and (ii) only.
- (f) (ii) and (iii) only.
- (g) (i) and (iii) only.
- (h) (i), (ii) and (iii).

### Instructions for Question 6 to Question 10:

The questions below are logical questions. In each question, two statements X and Y are given. You have to identify from the following options what is their relation.

- (a) Both statements are not true.
- (b) Statement X is true. Statement Y is not true.
- (c) Statement X is not true. Statement Y is true.
- (d) Statement X is true. Statement Y is true. Statement X and Statement Y have no logical implication.
- (e) Statement X is true. Statement Y is true. Statement X is a cause of Statement Y.
- (f) Statement X is true. Statement Y is true. Statement Y is a cause of Statement X.

### Question 6

**X:** Paper making technology was invented in ancient China.

**Y:** The first electronic computer was invented in the earlier 20 century.

### Question 7

**X:** Charles Babbage invented the first electronic computer.

**Y:** UK made the first commercial computer in the middle of 20 century.

### Question 8

**X:** Alan Turing built the first electronic computer.

**Y:** Alan Turing found a method to break the encryption code of all the Germany radio messages during the World War II.

### Question 9

**X:** Mouse was invented by the engineers in Xerox.

**Y:** Steve Job made use of mouse to develop graphical user interface for controlling the operating system of a Mackintosh personal computer.

### Question 10

**X:** An App developer has to pay commission to Google whenever his/her App has been purchased and downloaded by a buyer over the Google Play platform.

**Y:** App developer is a customer of Google.

## Section B

### Question 11

- (a) What is the contribution of Alan Turing in the history of computer? [2 marks]
- (b) What is the contribution of Alan Turing in the World War II? [2 marks]
- (c) After World War II, Alan Turing applied a position in the University of Manchester. As the university had an electronic computer there, Alan Turing thought that it could be possible for him to realize a computer to mimic human thinking. In the end of the day, did Alan Turing make it? [2 marks]

- (d) What was the cause of his death? [2 marks]
- (e) What is the nationality of Alan Turing? [2 marks]

### Question 12

- (a) Mauchly & Eckert Company is the first US firm building the first commercial electronic computer. However, this firm failed to deliver the computer on-time because the firm had underestimate the investment cost on an important component of a computer. What is this component? [2 marks]
- (b) What is the name of the first commercial computer in US? [2 marks]
- (c) Which company finally made the first commercial computer in US? [2 marks]
- (d) For marketing purpose, the first US commercial computer had been used in a prediction. What prediction was it? [2 marks]
- (e) In this event, was the prediction correct? [2 marks]

### Question 13

- (a) In 1975, IBM introduced the first personal computer called IBM5100 to the market. However, IBM5100 failed to meet the market. What are the two reasons leading it failure to the market? [4 marks]
- (b) When Macintosh was released to the market in 1984, a new feature had been added. The new feature led to a revolution in the use of a computer. Subsequently, tech giants like IBM and Microsoft have to follow and add this new feature in their future product. What is this new feature? [2 marks]
- (c) What are the technological advancements, both in hardware and software, from the first generation electronic computers to the era of personal computers? [4 marks]

### Question 14

- (a) What is the definition of an information system? [5 marks]
- (b) Describe in detail how did an accounting information system look like in 400 years ago. [5 marks]

## Section C

### Question 15

- With an aid of a diagram, describe the relations amongst business operations, information systems and information technologies. [4 marks]
- Is decision making a job to be accomplished by an information system? [1 marks]
- What are the social effects of information systems being used in an enterprise? [5 marks]

### Question 16

- (a) As an ethical practice, what should you do if you have come across someone who is logging in an account? [3 marks]
- (b) As an ethical practice, what should you do if you have come across someone who is reading his/her emails? [2 marks]
- (c) In the lecture, professor has introduced a method how to set a secure password. Describe in detail steps how to set a secure password. [3 marks]
- (d) Suppose that you would like to access a computer in a computer lab to edit a report. Happen to be, only one computer is available in the lab. But, it has been hanging up and no response to any input. Under such circumstance, what should you do? [2 marks]

### Question 17

- (a) With an aid of diagram, describe how a smartphone can access to a homepage if the WiFi option has been ON and there is WiFi access point around. [5 marks]
- (b) With an aid of diagram, describe how a smartphone can access to a homepage even if the WiFi option has been OFF. [5 marks]

### Question 18

Central processing unit (CPU) and graphical processing unit (GPU) are two very different processors that we can find in a notebook computer or an iPhone.

- (a) In term of design architecture, what is the difference between a CPU and a GPU? [2 marks]
- (b) In term of the average processing time of an instruction, what is the difference between a CPU and a GPU? [2 marks]
- (c) In term of the number of instructions in the instruction set, what is the difference between a CPU and a GPU? [2 marks]
- (d) In term of circuit complexity, what is the difference between a CPU and a GPU? [2 marks]
- (e) GPU is designed to process a particular class of computation, what is it? [2 marks]

## Section D

### Question 19

- (a) State three families of operating systems that you can find in desktop computers. [3 marks]
- (b) State three families of operating systems that you can find in smartphones. [3 marks]
- (c) State three families of operating systems that you can find in notebook computers. [3 marks]
- (d) Which family of the operating systems, or which operating system, is open source? [1 mark]

### Question 20

- (a) In this semester, what is the total number of lectures we can have? [2 marks]
- (b) What is the title of the textbook assigned for this class? [2 marks]
- (c) If a student would like to use a notebook computer to drop notes, what he/she should do? [2 marks]
- (d) Is it allowed to use a cell phone to take photos on the notes the professor put on the blackboard? [2 mark]
- (e) If a student is waiting for an urgent call, what he/she should do? [2 marks]

### Question 21

- (a) If a student skips class without proper reason for more than three times, what the consequence will be? [2 marks]
- (b) In the lecture, the professor has mentioned two proper reasons, in which a student does not have to supply any proof for applying leave/absent. What are these two proper reasons? [2 marks]
- (c) A student has bought a breakfast and the student is very hungry. But, the lecture has been started. What he/she should do? [2 marks]
- (d) Students' attendance will be checked in every lecture. State two reasons why the professor needs to do that. [4 marks]

### Question 22

- (a) What is the full name of the instructor (i.e. the professor) of this class? [2 marks]
- (b) Where is the office of the instructor? [2 marks]
- (c) Who is the TA of this class? [2 marks]
- (d) How many class tests a student has to seat-in? [2 marks]
- (e) Suppose that the due date of an assignment is September 11, 2020. A student submits his/her assignment to the course Gmail account at September 11, 2020 : 00 : 10, i.e. ten minutes after midnight, will the submission be considered as on-time? How many bonus score will the student get from this assignment? [2 marks]