**Sharif Education Complex**

**Summer Task-Computer Science (2210)**

**OLevel-I**

**Write and Revise the structured-questions of the following chapters in your notebooks.**

**Chapter # 01** Data Representation

1. Convert the following into given base:

*a. (11100101)2 = ( ? )10*

*b. (11111111)2 = ( ? )10*

*c. (1100110010001011)2 = ( ? )16*

*d. (1111001000011)2 = ( ? )16*

*e. (81)10 = ( ? )2*

*f. (29)10 = ( ? )2*

*g. (437)10 = ( ? )16*

*h. (151)10 = ( ? )16*

*i. (F015)16 = ( ? )2*

*j. (2C3)16 = ( ? )2*

*k. (5A00)16 = ( ? )10*

*l. (78D)16 = ( ? )10 2.*

**Chapter # 02** Communication and Internet Technologies

1. When a customer makes a payment, the file is amended by entering the account number and the amount that has been paid in.

(a) State what is meant by check digit, and explain how it could be used to validate the account number?

(b) List the types of errors that could be identified by check digit.

1. Errors can occur when data is transmitted from one device to another. Checksum can be used to detect errors.

Explain how a checksum can be used to monitor a transmission for errors.

1. Define

(a) Sampling Rate

(b) Checksum

1. You have been asked to write a report and fill the column on the use of following communication methods;

|  |  |  |
| --- | --- | --- |
| **Techniques** | **Advantage** | **Disadvantage** |
| Mobile Phones |  |  |
| Video Conferencing |  |  |
| Emails |  |  |

1. Describe the term parallel, full duplex transmission?
2. Most of the Hotel offer WIFI wireless internet in the rooms.

Give two disadvantages of using WIFI rather than wired internet access.

1. Sometimes the URL contains the characters **%20** and  **?**

Describe the function of these characters

**Chapter # 03** Logic Gates

1. Q1) An elevator has the following sensors:

G – The gate is closed

L – The elevator is loaded (has people or material on it)

B – The elevator is in demand (someone has called the elevator to a floor)

M – The elevator is moving

* Draw the logic circuit of an alarm signal, Also that A is True if

**either** (a) the gate is not closed AND the elevator is moving,

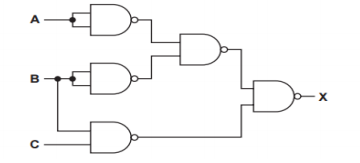
**or** (b) the elevator is moving AND not in demand or loaded,

**or** (c) the gate is not closed AND the elevator is loaded and moving,

**or** (d) the elevator is not loaded AND not moving, AND in demand.

* (b) Draw a truth table for the logic circuit drawn.

1. (a) Complete the truth table for the following logic circuit, which is made up of NAND gates:



|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | X |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. A computer will only operate if three switches P, S and T are correctly set. An output

Signal (X = 1) will occur if P and S are both ON or if P is OFF and S and T are ON. Design a logic network and draw the truth table for this network.

1. A traffic signal system will only operate if it receives an output signal (D = 1). This can

only occur if:

**either** (a) signal A is red (i.e. A = 0)

**or** (b) signal A is green (i.e. A = 1) **and** signals B and C are both red (i.e. B and C are both 0)

Design a logic network and draw a truth table for the above system.

**Chapter # 04** Operating Systems

Describe how buffers and interrupts can assist in the transfer of data between

primary memory and a secondary storage device.

**Chapter # 05** Input and Output Devices

1. A student uses her home computer to:

• *play games which she gets from a library;*

*• finish work that she brings home after starting it at school;*

*• produce a finished copy of the work to hand in to her teacher;*

*• communicate with her friends.*

State the peripheral devices, apart from keyboard, mouse and monitor, which she would need. Explain why each would be necessary.

1. What is a touch screen technology?
2. Write the use/application of MICR, OCR, OMR and Barcode reader
3. Differentiate between different types of touch screen technology?
4. A reaction vessel in a chemical plant is monitored, along with many others, by a

computer system using a number of sensors of different types. Describe three

different types of output that would be used by such a system, stating why such a

use would be necessary.

**Chapter # 06** Memory, Storage devices and Media

1. (a)State two ways that RAM and ROM memory differ.

(b)Explain what types of data would be stored in each of RAM and ROM memory,

giving reasons for your answers.

1. a) State two methods of data entry used by banks in their cheque system.

b) Explain why banks find the use of your two examples suitable for this application.

**Also Solve the questions related to the above mentioned chapters from past papers (theory) 2015 to 2019 on a note book ( including var 1 and var 2 with May/June ,Oct/Nov version)**

Papers can be downloaded from

<https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-o-level-computer-science-2210/past-papers/>

**☺ Note:**

* Assignment must be in a written form(mendatory)
* Your Answers must not exceed with 5-7 lines
* Use formal language for explaining your answers
* Handwriting must be neat, readable and in a well presentable manner
* Your assignment will compensate in your Sessional marks