



Course: CSC101-Application of I&CT

Maximum Marks: 25

Dated: 06 Nov 2023

Instructor: Zahid Anwar

Time: 11:30 – 12:50

- All questions are self-explanatory and require no further explanations during exam time.
- Make sure that you have signed the attendance sheet before leaving the examination room.
- Return the question paper along with the answer sheet.
- Attempt all questions.

(CLO – 1: Explain the basic computing models and its related hardware)

- Q.# 1. Discuss multiple ways to enhance the performance of a computer system. What role a cache can play in boosting the performance of a computer system? [2 Marks]
- Q.# 2. Suppose that each of the four modules of machine cycle is taking 0.2 seconds. If there are five instructions to be executed, how much time would be taken for the whole process to complete without pipelining? How much time would be taken for the whole process to complete when using pipelining. [3 Marks]

(CLO – 2: Work out with different number systems and codes)

- Q.# 3. Suppose two hexadecimal numbers (BEEF)₁₆ and (2D55)₁₆ are given to the computer to be converted in octal and added. [2+2+2+2 = 8 Marks]
- Perform the conversions that how computer will convert the numbers into binary.
 - Convert the binary into octal.
 - add the converted octal numbers together.
 - Produce the result in decimal format.

(CLO – 3: Describe the fundamental concepts of ICT domains)

- Q.# 4. What is the difference between multithreading and multiprocessing? Discuss the importance of synchronization in a multithreaded environment. [2 Marks]
- Q.# 5. You are a network administrator for a medium-sized business that has recently expanded and opened a new office location. You are tasked with designing the network topology for the new office. The office will have 25 employees who will need access to the network for email, file sharing, and internet access. Describe the different network topologies available and recommend a topology that would be suitable for the new office. Explain the reasons behind your recommendation. [4 Marks]

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
1 0 1 1 1 1 1 0 1 1 1 0 1 1 0 1

13 12 11 10 9 8 7 6 5 4 3 2 1 0
1 0 1 1 0 0 0 1 0 1 0 1 0 1

10 - a
11 - b
12 - c
13 - d
14 - e
15 - f

Q# 6. Classify the following types of communications as simplex/half duplex/full duplex:

[2 Marks]

- a) A radio receiving broadcast from a radio station
- b) Two friends talking on the mobile phone

Q# 7. You are part of a software development team working on a project to create a new mobile application for a local food delivery service. The project has been progressing well, and you are nearing the final stages of development. However, the developers are failing to implement certain functionality and the project manager is unable to find an expert to deal with it. Without this functionality, the project is incomplete and failing to be accomplished, and cannot be deployed. Which of the stages of Software Development Life Cycle (SDLC) were not carried out carefully? How this failure could be avoided?

[4 Marks]

*****BEST OF LUCK*****