

**GUJARAT NATIONAL LAW UNIVERSITY  
GANDHINAGAR**

Course: Information Technology  
Semester- II (Batch: 2020-25)

**End Semester Online Examination: July-August 2021**

**Date: 08<sup>th</sup> August, 2021**

**Duration: 8 hours**

**Max. Marks: 40**

**Instructions:**

- The respective marks for each question are indicated in-line.
- Indicate correct question numbers in front of the answer.
- No questions or clarification can be sought during the exam period, answer as it is, giving reason, if any.

**Marks**

Q.1 Company "X" is into the business of fabrication of computers and recruits new employees from time to time. The Company requires you to answer the following questions so that it helps the company to train the new recruits: (2+2=4)

- a) Transmission of data in a computer plays an important role. Explain the different types of paths that are used in a computer to transmit the data. (200-250 words)
- b) Explain any three special functions which if performed by the Operating System will be helpful to the user and enhance the value of the Operating System. (200-250 words)

Q.2 Company "Y" is into the business of facilitating the end-use of Information Technology. In view of the same, the company requires the information on the following from you for its records so that it helps it whenever the demand is raised: (3+3+2=8)

- a) Explain any three types of physical layout of computers and peripherals that can be adopted in a network with the help of a neat diagram. (250-300 words)
- b) Explain the working of a bistable electronic circuit having only one input terminal with the help of a neat diagram and truth table. Also mention the advantage of having only one input terminal. (250-300 words)
- c) Explain any four types of attacks that can be made on the security of an information system. (250-300 words)

Q.3 Company "Z" is an IT Company that motivates the various stakeholders to adopt new emerging technologies. Answer the following questions pertinent to specific stakeholders so that it helps the company to convince the stakeholders to adopt the new technology: (2+2+2+2=8)

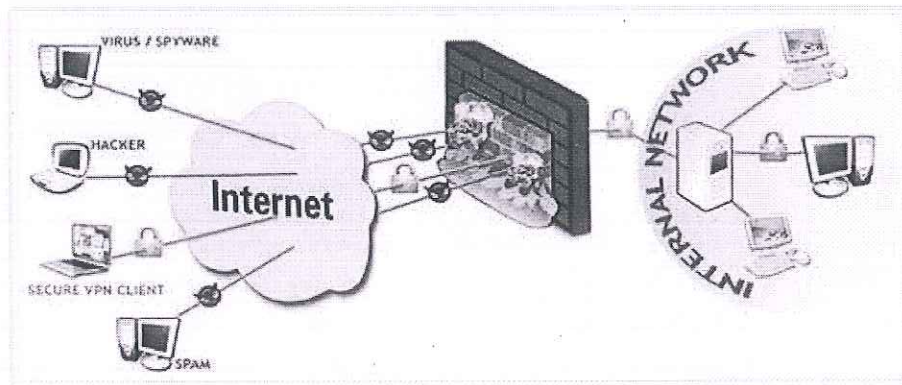
- a) Company "A" is interested in venturing into electronic commerce and approaches "Z". Explain any four types of electronic commerce that is possible to enhance the services of "A". (200-250 words)
- b) Company "B" is interested in adopting intelligent machines. Explain the various categories of Artificial Intelligent systems so that the company can decide the best, based on its needs. (200-250 words)

- c) Company "C" is interested in adopting Blockchain Technology but is unaware of the practical challenges. Hence explain any four challenges that may be faced during the usage of this technology. (200-250 words)
- d) Company "D" wants to use the microprocessor. Hence explain any four groups of instructions so that it helps the stakeholder to understand the methodology of instruction within a microprocessor in a better manner. (200-250 words)

Q.4 Read the problem and answer the following questions: (7)

Hitasha, took an open-source technology PGP (which is short for Pretty Good Privacy) for encryption of emails. She had to work a lot on debugging and adjusting it to the security requirements in spite of it being one of the most advanced encryption standards. Most software products with PGP were created that need network security. Explain the process of authentication in the network security and secured email transactions. (600-800 words)

Q.5 Internet protocols are essential for recognizing attack traffic, and for programming a firewall or Intrusion Detection/Prevention System (IDS/IPS). Based on the given diagram explain the tools for firewall security and also explain the process of password security? (550-650 words) (6)



Q.6 Mr. X worked as an engineer for KIA's autonomous car division. He shared with the manager that he intends to resign and return back to his hometown to take care of his elderly mother, after serving the company for the last 8 years, where he has plans to work for an electric car manufacturer. The conversation left the manager suspicious. Company security started an investigation. Mr. X's two work phones and laptop were searched and were alarmed after reviewing his network activity. The network data reflected that the activity of Mr. X had spiked to a two-year high in the last few days before his resignation. It consisted of "bulk searches and targeted downloading copious pages of information" taken from secret databases he could access. Explain the process of forensic investigation and any three tools that can help in admitting the offence. (600-800 words) (7)

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