



United International University
Department of Computer Science and Engineering
SOC 2101: Soc., Tech. and Engg. Ethics Final Exam. : Spring 2022
Total Marks: 25 Time: 1 hour 30 minutes

Any examinee found adopting unfair means will be expelled from
the trimester / program as per UIU disciplinary rules.

Answer all the 5 questions. Numbers to the right of the questions denote their marks.

1. Wayne is a nontechnical entrepreneur who holds the patent rights for the chemical compound for removing impurities in the oil. Investors want to invest in assisting commercialization if a low-cost temperature indicator is provided. Commercially available temperature indicator systems are too expensive. Andy, who is an engineering consultant, is approached by the entrepreneur Wayne. Andy is required to sign a non-disclosure agreement to not disclose this information with anyone. Andy will specify the components and the primary indicator design at an hourly rate. Andy will receive a subcontract if the investors support the project. Andy presents a specification of the required components and the basic design along with a bill for his services and a copy of his resume; Wayne explains that he has not had time to complete the contract due to his preparations for the meeting with the investors. After the investor meeting, Wayne compensates Andy for his efforts and tells him that the investors are handling the calibration development with their own consultant. Andy complains about the loss of the sub-contract, but Wayne insists it was the investors' decision. Consultant Andy hears that the investors have approached a competitor consultant (with a comparable instrumentation experience) to conduct the calibration work. He suspects that the investors are taking the components and basic design from his initial work for the entrepreneur.

List the violated IEEE codes of ethics with only one line of reason from the given scenario provided below.

2. Facebook is a popular social platform nowadays. The younger generation spends most of their time on Facebook. Also, Facebook uses many strategies to attract more people. Many large companies advertise their job vacancies on Facebook so that more people can see them. Facebook also uses an advertising algorithm that displays ads using different user information. It is basically a machine learning model that takes input and generates some output based on that information. This model takes into many users account features such as age, location, page likes, app usage, and even when they browse their mobile etc. Based on this information, this algorithm displays different types of ads to different categories of users. A case study shows that Facebook advertising algorithms give men and women different job opportunities. It is often the case that the ads viewed by male users promise higher pay than the ads viewed by female users. In addition, men may see more job advertisements than women.
- (a) Do you think the data collection process was ethical? If yes, explain. Otherwise, mention how is this unethical and what could have been done instead?
- (b) What type of bias is introduced here? Is this bias very harmful? What can he do to get rid of this bias? [5]
3. Mr. Azad is a fruit seller. He sells many kinds of fruit. He has a shop in Karwan Bazar, Dhaka. This summer he came to an agreement with Mr. Karim, a mango fruit trader in Rajshahi. The fruits of Karim's garden ripen a little earlier. So he quickly bought the fruit from the dealer and sold it at a good profit. His business is doing very well and the profits are going well. The owner of the shop next to him, another fruit seller, was disappointed with Azad's progress. He posted a message on Facebook - "Since Mr. Azad is selling ripe mangoes so quickly, I am sure Mr. Azad adds formalin to his fruit". He posted it so that Azad's shop in Karwan Bazaar would get a bad impression. What is your standpoint regarding the above situation- please explain your own word in terms of ethical context. [5]
4. Nowadays shopping from online has become very popular and widely used among those people who are accessing the computer technology regularly. Many websites have a loyalty program to reward their customers for making different purchases, by offering points or coupons. This is subject to another online scam because cyber criminals can target them and steal your sensitive data. If you think anyone wouldn't want to access them, think again. The most common attack is a phishing scam that looks like a real email coming from your loyalty program, but it's not. Malicious hackers are everywhere, and it takes only one click for malware to be installed on your PC and for hackers to have access to your data.
- So, what is your view on the impact the computer technology has over the online shopping? Please mention some advantages and disadvantages over it. [5]
5. Electronic devices are built using some of the most common resources available in our planet, such as sand and some of the rarest, like gold. In addition, extremely dangerous and harmful chemicals such as lead and mercury are used in the process.

These materials need to be extracted from our planets ground, not always following the most ecological or environment respectful methods, especially on the poorest countries that do not have access to affordable and efficient mining and processing equipment and most importantly the knowledge and awareness for topics related to environmental protection. In these places, extremely dangerous chemicals are used, such as mercury in order to extract some materials. Those end up by being dumped into the ground without any treatment or concern to environment or even the areas where people live.

How these raw materials turn negative impact over the environment? What measures the tech companies should adopt to save our nature? Explain the impact over the environment. [5]