1. (20 points) Define the terms ***freeware*** and ***shareware*** and explain the differences, if any, between the two.

Freeware- refers to software that always remains free of charge to the public

Shareware- commercial software that is free for a limited time, but is eventually priced

While both freeware and shareware are free at first, freeware will always remain free, whereas shareware will only be free for a limited time. Shareware offers a free trial that is free of cost, in order to show users the benefits of their software and convince the users to buy their product. Just how there are free versions of shareware, there are also paid or “premium” versions of some freeware, which offer something more. Another important thing to note is that both softwares are protected by copyright, meaning that no one is allowed to copy the work without the permission of the developer.

*Source-* [*https://www.kaspersky.com/resource-center/definitions/shareware*](https://www.kaspersky.com/resource-center/definitions/shareware)

1. (20 points) What is a software ***copyright*** and how does a person obtain one?

Software copyright is a copyright, or protection law, that prevents someone from making a copy of your software without your permission. A lot of hard work and thinking goes into obtaining a software copyright, and though developers can encounter very different situations, there are a few major steps that one must perform in order to copyright a software.

The first thing you must do is file a registration with the Copyright Office. This can be number in a number of different ways, making it a lot more convenient for the user. One way is online through its office, another is completing fill-in form on a computer, and the final way is using a paper form from the Copyright Office. After this, you just need to deposit a copy of your work with the Copyright Office. There are a few guidelines that you must follow, and though I won’t list them, I will mention that it is important to keep those in mind while filling these forms.

*Source-* [*https://www.wikihow.com/Copyright-Software*](https://www.wikihow.com/Copyright-Software)

1. (30 points) The Association for Computing Machinery (ACM) is a well-known organization for computing professionals. When someone joins the ACM they are expected to follow a Code of Ethics and Professional Conduct. Go to the ACM website (www.acm.org) and read the Code of Ethics and Professional Conduct. For each of the situations below, describe which, if any, imperatives or responsibilities may have been violated.
2. A programmer is working under a very tight time deadline to finish a programming assignment for a consumer banking application. Failure to meet the deadline could result in the programmer losing her job. In an effort to save time and meet the deadline, the programmer does not thoroughly test her programs.

This is a violation of 2.5- (Computing professionals should strive to be perceptive, **thorough**, and objective when evaluating, recommending, and presenting system descriptions and alternatives. Extraordinary care should be taken to identify and mitigate potential risks in machine learning systems). This is because the programmer is being careless, so she can finish, rather than being thorough as this rule suggests.

1. A friend of yours gives you a copy of a really cool smartphone app that a friend of his wrote using Java. You modify the program source code to make it even better and you offer it for sale.

This is a violation of 1.5- (Computing professionals should credit the creators of ideas, inventions, work, and artifacts, and respect copyrights, patents, trade secrets, license agreements, and other methods of protecting authors' works). This is because you aren’t giving credit to the creator of the work/app.

1. A consulting firm hires you as a freelance programmer. The firm sends you a letter of understanding, which simply states how much they will pay you per hour and the calendar period of time the work will be performed over. You send them an email accepting the assignment and begin work. Your assignment involves working for an organization in the health care field to help them set up a database containing medical records for tens of thousands of individuals. Being an entrepreneur by nature, you see an opportunity to take the data and sell it to insurance companies, so you quit your assignment and pursue that business venture.

This is a violation of 1.6- (Computing professionals should only use personal information for legitimate ends and without violating the rights of individuals and groups. This requires taking precautions to prevent re-identification of anonymized data or unauthorized data collection, ensuring the accuracy of data, understanding the provenance of the data, and protecting it from unauthorized access and accidental disclosure.)This is because selling the data to insurance companies is not protecting it from unauthorized access and accidental disclosure.

4. (30 points) Visit the [www.gnu.org](http://www.gnu.org) and [www.opensource.org](http://www.opensource.org). Read about their missions, definitions, and products, and answer the following questions:

1. Would it be okay for you to download the GNU software, modify it, and offer it for sale at $5,000 per copy? If yes, what, if any restrictions would you have to comply with? If no, why can't you do this?

Yes, GNU is an operating system that is free software. This means that the users have the right to **run, copy, distribute, study, change and improve the software. Keeping this in mind, it would be okay for you to change and distribute the GNU software, as long as you provide access to the source code.**

1. Would it be okay for you to download an open source software product, modify it, and offer it for sale at $5,000 per copy? If so, what, if any restrictions would you have to comply with. If no, why can't you do this?

Yes, because open source software grants users the rights to use, study, change, and distribute the software to anyone and for any purpose, but you must comply to the open source license restrictions. This means that you must respect the origin of software, and you may have to preserve the name of the authors and a copyright statement within the code, or a requirement to redistribute the licensed software only under the same license

1. What is the GNU definition of ***free software,*** and how does it compare with the definitions of ***freeware*** and ***shareware*** in question 1?

Free software means that the **users have the freedom to run, copy, distribute, study, change and improve the software. Unlike freeware and shareware, you are always allowed to copy, change, and distribute free software. Also, unlike freeware, the free in free software refers to liberty rather than price, meaning that free software can be sold.**