	Intellectual Property [EP1, EP4]	
	Discuss the permission related issues related to open-source licenses. What is copyright and copyleft? [CO4, C3, Mark: 10]	
	Discuss the software protection techniques that prevent the unauthorized use of a commercially available software. [CO4, C3, Mark: 10]	
	Compare among the most commonly used (at least three) Open-source Licenses highlighting their differences and similarities. Identify the most restrictive and most permissive open-source licenses. **Prepare** a guideline for choosing the appropriate open-source license for a HMIS software/web service/mobile app. The objective is: an IT professional should be able to follow your guideline to choose the most appropriate open-source license for his software. Keep the language free from too-technical terms so that the experts from multiple disciplines can make educated decisions based on your report. [CO2,C4, Mark: 10]	
	Ethics: Pirating scientific articles [EP4, EP5, EP6] Science, Technology and Engineering advances through research and innovation. Scientists, Researchers and Innovators disseminate their knowledge through scientific articles. Scientific articles are then spread throughout the community, and new aspiring innovations are made based on the works done by previous scientists. Unless a technology is patented, the knowledge should be accessible for free to anyone who wants to do research. However, publishing a scientific article requires the researcher to write a scientific article in a structured way, then peer-reviewed by the experts in that field to verify the work. This peer-review is usually done for free by other researchers.The scientific article is published by a publishing house, which assigns an editor of the publication (i.e., a conference proceeding, a journal, a book). The editor is responsible for finding researchers (who are willing to do the peer-review for free) and selecting a paper for publication. Typically, it takes 4 months to 1.5 years for publishing an article in conferences and journals respectively.The author is then notified and asked to pay the publication fee and transfer the copyright to the publishing house. The publication fee is usually 500 USD for conferences, around 1000 USD for reputed journals. For journals, the fee gets higher for expedited publishing. If an article gets published, the article is no longer accessible for free, and it becomes the intellectual property of the publishing house. Students can get access to the	

published articles through their universities, but it is the universities who pay for the subscription. In some developing countries, the government purchases the subscription and gives it to the universities for the students. In research organizations, every single article needs to be purchased for around 40 USD per paper.

There have been some services like SciHub, through which the scientific articles can be accessed for free. But these services were not sustainable since these were based on leaked or donated credentials. Several of these sites were categorized as "harmful" and hunted down in the past few years, making scientific articles difficult to access. Due to this business model, lots of predatory publishing companies emerged, which publish almost anything if anyone pays them, facilitating pseudo-science. On the contrary, if you email the authors, they will happily send you a copy of their article, and the several researchers from the Machine Learning community publish their work on their personal webpages, so that the knowledge becomes open and free to access for everyone.

As a researcher living in a developing country, researchers often resort to some level of piracy for accessing the scientific articles. To advance research, you need to find a gap in knowledge, explore the existing approaches, improve/criticize previous works, and all these require you to read lots of scientific articles, and the cost skyrockets towards the unaffordable level. As a research project supervisor in such a country, what would you recommend as the most ethical way to access the scientific articles to conduct research?

At this point you must make a decision. **Follow** the steps to ethical decision making by Sara Baase, and **justify** your actions applying the ethical theories.
[CO4, C3, Mark: 25]

Steps to Ethical Decision Making (by Sara Baase):

Textbook: S. Baase, A Gift of Fire: Social, Legal, And Ethical Issues For Computing Technology (4th edition), Boston, MA, United States: Prentice Hall, 2012.

Brainstorming phase: (10 marks)
•   List all the people and organizations affected. (They are the stakeholders.)
•   List risks, issues, problems, consequences.
•   List benefits. Identify who gets each benefit.
•   In cases where there is not a simple yes or no decision, but rather one must choose some action, list possible actions.

Analysis phase:(10 marks)
•   Identify responsibilities of the decision maker. (Consider responsibilities of both general ethics and professional ethics, ACM/SE Code of Ethics)

- Identify the rights of stakeholders. (It might be helpful to clarify whether they are negative or positive rights)
- Consider the impact of the action options on the stakeholders.
- Analyze consequences, risks, benefits, harms, and costs for each action considered.
- Consider Kant's, Mill's, and Rawls' approaches.
- Then, categorize each potential action or response as ethically obligatory, ethically prohibited, or ethically acceptable.

Decision Phase: (05 marks)
If there are several ethically acceptable options, select an option by considering the ethical merits of each, courtesy to others, practicality, self-interest, personal preferences, and so on. (In such a case, plan a sequence of actions, depending on the response to each.)

Ethics: Pirating textbooks [EP4, EP5, EP6]

Assume you went to a country for higher studies where the anti-piracy law is strict. The textbooks for your first semester costs around 900 EUR, and your scholarship does not cover the costs of the textbooks. Hardcopies of the books are available at the library but for a few weeks only, so you must reissue the book every few weeks. You can make unauthorized copies of the chapters you are interested in, or you can download the electronic version of the book from the internet. You can also tell your friends to send you the cheaper pirated hardcopies of the books from Bangladesh by courier.

You know that pirating/making unauthorized copies of copyrighted contents is illegal. Yet in your home country, it is widely practiced, considering the high costs that are more than the semester fees at private universities. It is often argued that if you can borrow a copy of the book from the library for free, and return it when you are done reading, why can't you do the same for e-books (i.e., download the books from the internet and delete it when the course ends). The counter argument is that the books were purchased by the libraries, and in some countries, the copyright owner of the book receives money every time the book is borrowed.

On the other hand, violating law could impose serious consequences like heavy fines, losing your scholarship, expulsion from the university, banishment from the European Union and so on. By pirating e-books, you are depriving the copyright owner and the author from the monetary benefits. The cheap copies at your home country are also pirated, where the costs are only for the paper, not for the contents of the book, and the money does not go to the copyright owners. You looked thoroughly and found no subscription services that offer access to the books for a limited time with a small fee, which you would have happily paid, and could have been the most ethical option.

At this point you must make a decision. **Follow** the steps to ethical decision making by Sara Baase, and **justify** your actions applying the ethical theories.

[CO4, C3, Mark: 25]

Steps to Ethical Decision Making (by Sara Baase):

Textbook: S. Baase, A Gift of Fire: Social, Legal, And Ethical Issues For Computing Technology (4th edition), Boston, MA, United States: Prentice Hall, 2012.

Brainstorming phase: (10 marks)
•   List all the people and organizations affected. (They are the stakeholders.)
•   List risks, issues, problems, consequences.
•   List benefits. Identify who gets each benefit.
•   In cases where there is not a simple yes or no decision, but rather one must choose some action, list possible actions.

Analysis phase:(10 marks)
•   Identify responsibilities of the decision maker. (Consider responsibilities of both general ethics and professional ethics, ACM/SE Code of Ethics)
•   Identify the rights of stakeholders. (It might be helpful to clarify whether they are negative or positive rights)
•   Consider the impact of the action options on the stakeholders.
•   Analyze consequences, risks, benefits, harms, and costs for each action considered.
•   Consider Kant's, Mill's, and Rawls' approaches.
•   Then, categorize each potential action or response as ethically obligatory, ethically prohibited, or ethically acceptable.
Decision Phase: (05 marks)
If there are several ethically acceptable options, select an option by considering the ethical merits of each, courtesy to others, practicality, self-interest, personal preferences, and so on. (In such a case, plan a sequence of actions, depending on the response to each.)

A clicker is an electronic device that enables machine-scorable tests. When an objective-type question is asked, the students enter test answers into the device, and the answer is sent to the instructor's laptop in the classroom. Upon receiving the answer, the software on the laptop immediately grades the tests and emails the score back to each student.

Suppose you are the dean of the Engineering faculty, who must decide whether
to allow the use of this system.
• **Analyze** the decision as both an ethical and practical problem.
• **Discuss** potential benefits and problems or risks of using the system.
• **Discuss** all the issues (of the kind relevant to the topics of this book) that
are relevant to making the decision.
• **Mention** any warnings or policies you might include if you approve the
use of the system.

A prescribed process of ethical decision making is described at the end of this question. You are encouraged to do your own research from **Chapter 9 of the book**, scientific papers, YouTube videos and so on.

Steps to Ethical Decision Making (by Sara Baase):
[given above]

Distinguish between negative rights and positive rights with examples.
[CO2,C2, Mark: 05]

Few years ago, a campaign of not imposing VAT on education went on. John, a student, supported the campaign, and was very much active on social media and motivating people to launch a DDoS attack on the website of the Ministry of Education of Bangladesh. Furthermore, he defaced several websites, and posted pictures and texts in support of the movement.

Read the Digital Security Act of 2018 (relevant sections of the act are given as attachment) and **criticize** John's actions in light of the law.
[CO3,C5, Mark: 07]

In recent days, a campaign to reform the quota system in Government jobs is going on. John, supporting the campaign, is very much active on social media and motivating people to launch a DDoS attack on the website of Bangladesh Public Service Commission. Furthermore, he defaced several websites, and posted pictures and texts in support of the movement.

Read the Digital Security Act of 2018 (relevant sections of the act are given as attachment) and **criticize** John's actions in light of the law.
[CO3,C5, Mark: 07]

A few days ago, a nationwide protest was initiated by the students to reform the overall transportation system of Bangladesh. John, supporting the campaign, is very much active on social media and shared everything that came in front of him without verifying. Some of the contents were true and some were pure rumors.

He also posted pictures of the protests where many of the placards contained derogatory language against the government and the police. Furthermore, he motivated people to launch DDoS attacks on the website of Bangladesh Road Transport Authority (BRTA). He also defaced several websites, and posted pictures and texts in support of the movement.

Read the Digital Security Act of 2018 (given as attachment) and **criticize** John's actions in light of the law.
[CO3,C5, Mark: 07]

A few months ago, a report on "ACME TV" was shown, where the journalist investigated financial irregularities in several government offices. He and his team visited several government offices, and interviewed several employees of the office on camera. His

	team collected some documents that prove the corruption. One of the employees refused to get interviewed and tried to run away. Unfortunately, he forgot to take off the microphone attached to his shirt and started to verbally abuse the reporter and threatened the channel. The whole incident was broadcasted on the TV channel as well as on YouTube. Read the *Digital Security Act of 2018* (given as attachment) and **criticize** the actions of the journalist in light of the law.	
	"Palao" is a successful ride-sharing startup, founded in Bangladesh. They have introduced a payment system called "Palao Pay" without the approval of Bangladesh Bank. Recently, there has been evidence against "Palao" that they are collecting user information (i.e., real-time location, SMS messages, contacts list, list of installed applications). Read the *Digital Security Act of 2018* (given as attachment) and **criticize** the actions of the journalist in light of the law.	

Principles of Data Collection and Use	
Q1. Assume you have developed a system that includes a wearable device and a mobile application named "*Batman*", that allows the parents to track their child. The device and the app can access almost everything on the phone and monitor the vital signs of the child. You have the capability to collect, store and use any data through the app. You advertise that your app uses machine learning for early detection of health issues and unsafe events, so that the parents can be alerted. The parents can access the data anytime with another app, named "*Alfred*", which is also included in the package. The developer team works remotely from all over the world, the hardware is manufactured and packaged in China, and the customer segments are primarily in the US and EU, and you are the CEO working from Bangladesh. **Applying** the principles for data collection and use, create the informed consent document to collect the legal consent from the users of your product. Use reasonable assumptions, if necessary.	

Q2.

Assume that ACME INC is a renowned pharmaceutical company in Bangladesh, who are planning to produce a new drug for Hepatitis C. The treatment of Hepatitis C is costly. You are assigned to perform a feasibility study that requires a survey of the Hepatitis C patients, and their financial capabilities of affording the treatment.

Based on the survey data, the pharmaceutical company will decide the scale of production of the drug. The brand value of the pharmaceutical company is remarkable and can not be compromised.

Applying the principles for data collection and use, create the informed consent document to collect the legal consent of the participants of the survey.

Use reasonable assumptions, if necessary.