SAMPLE QUESTIONS AND ANSWERS

QUESTION II  [20 Points]

Briefly discuss possible intellectual property protection for a CD-ROM disc containing data.

QUESTION III  [10 Points]

Anne Carefree, reincarnated as a neoclassical existentialist poet, gave a poetry recital at the Pee Wee Herman Concert Hall of the California Seminary and University College for Kinetic Studies (better known as "Cal. S.U.C.K.S."). On this occasion, she extemporized her poetry, a fancy way of saying she made it up on the spot. Mario ("The Memory") Martinez, a student with an exceptional memory, returned home afterwards and wrote down from memory one of Anne's extemporized poems. He published it under the name "Conversations." Does Anne have a claim for copyright infringement against Mario?

QUESTION IV  [30 Points]

Payroll Management Systems (PMS) designs and develops computer utility programs. PMS's programs are marketed to banks, which in turn market them to the financial and treasury departments of various corporations. PMS develops generic programs, which may be readily customized to suit a particular client's specifications, thereby reducing the need for computer consultants. The PMS programs at issue are: (1) CRASH&BURN, a universal database management system; (2) ArcticFon, a generic communications program for tracking polar bear migration patterns; (3) Menu System/Driver, a treasury workstation/program; and (4)
CookBook, a financial report customizing program. The generic programs are able to work together to form unified generic utility system.

Scalper TicketMan ("Scalp") and Par-for-the-Course Gupta ("PG") both worked for PMS. Scalp was employed as a computer programmer between 1984 and March 1987. While an PMS employee, Scalp wrote the Communications and Menu modules of the PMS system. He also assisted in writing the CRASH & BURN program in C++, and in writing an initial version of the CookBook module for PMS. PG was employed by PMS as a computer programmer between 1986 and March 1987. PG collaborated with ST in creating CookBook and the C++ version of CRASH & BURN. PG and Scalp had trouble designing CookBook to be compatible with the rest of the system. PMS expended substantial resources to finally fix this problem, after many fruitless trial and error attempts. Information on some individual components of the PMS system appeared in books and scholarly publications. PMS's promotional literature was notoriously skimpy and provided only a user-oriented description of the advantages of PMS's product, but no information on, for instance, the product's architecture.

Both Scalp and PG signed non-disclosure agreements with PMS in which they agreed not to disclose or use any confidential or proprietary information of PMS upon leaving the company's employ.

Scalp and PG left PMS on March 13, 1987, and formed S&F, Inc., three days later. Within two weeks, S&F had created a prototype database program. That program, and other generic programs subsequently produced for S&F by Scalp and PG, were similar to comparable PMS programs. In addition, the overall architecture of the S&F system, which allows the individual programs to work together, was substantially similar to that developed by PMS. PMS sued S&F, alleging that Scalp and PG had misappropriated PMS trade secrets.

Analyze the strength of PMS's case.

**QUESTION IV  Suggested Answer**

PMS must prove (i) it possessed a trade secret, and (ii) the defendants are using that trade secret either in breach of an agreement, confidence, or duty or as a result of discovery by inappropriate means. A strong argument can be made that PMS's architecture constitutes a trade secret.

Refer to definition of a trade secret as discussed in class. In determining whether a trade secret exists, the following factors are relevant:

1. Extent to which the information is known outside the business.
2. Extent to which it is known by employees and others involved in the business.
3. Extent of measures taken to guard the secrecy of the information.
4. Value of the information to the business and competitors.
5. Amount of effort and money expended in developing the information; and
6. The ease or difficulty with which the information could be properly acquired or duplicated by others.

Application of these factors to the software programs at issue, suggests it constitutes a trade secret.

1. The manner in which PMS's generic utility programs interact, which is the key to the product's success, is not generally known outside PMS. The hypothetical suggests that various components of the PMS system are not secret, but are available to the public through books, commercially sold products, and scholarly publications. However, a trade secret can exist in a combination of characteristics and components, each of which, by itself, is in the public domain, but whose unified process, design, and operation, in unique combination, gives the company a competitive advantage. The ingredients of Coca Cola may, for instance, be known, but the process of combining them may nevertheless be a trade secret.

The way in which PMS's various components fit together as building blocks in order to form the unique whole, is secret. PMS's combination of programs was not disclosed in PMS's promotional literature, which contains merely a user-oriented description of the advantages of PMS's product. Such limited information does not constitute sufficient technical detail to be considered disclosure of the product's architecture. The package as a whole and the specification to make the components work together, are not in the public domain.

2 & 3. PMS has made reasonable efforts to maintain the secrecy of the source code and to make employees aware of the sensitive nature of the information. E.g., Non-disclosure agreement.

4, 5 & 6. From the stated facts, the value of the system to both PMS and its competitors, including the new competitor, S&F, is obvious. PMS made large investments in R&D. A significant amount of time and money was spent in investigating alternatives that in the end were not fruitful. This trial and error process is also protectible as a trade secret. PMS's architecture could not be easily duplicated without the secret information acquired through the trial and error process. S&F benefitted from this knowledge and could avoid these costly detours.

Conclusion: PMS's combination of generic utility programs constitutes a trade secret. Next step: Did defendants misuse that secret information in creating their own system, i.e. was there misappropriation? Here the court has to balance PMS's proprietary information and its former employees' freedom to utilize their skills and expertise to practice their profession. An
employee who achieved technical expertise in a previous job, may use that knowledge in competition with the former employer as long as the ex-employee does not use or disclose trade secrets in the process.

The existence of a non-disclosure agreement ensures that Scalp and PG are on notice about the nature and existence of PMS's trade secrets, and are aware of their duties not to disclose, misappropriate, etc. The hypothetical suggests that Scalp and PG did use aspects of PMS's system that are trade secrets. Given PMS's expensive trial and error process (which is a trade secret) it seems impossible to build a system from scratch, without running into some dead ends, without incorporating into the new system many of the valuable, confidential, and "proven-workable" features in PMS's systems. In their new company, Scalp and PG relied on knowledge and experience beyond their general experience and knowledge gained while employed by at PMS. They must have relied, for instance, on knowledge of PMS's numerous failed trials, which are trade secrets.

PMS cannot prevent the defendants from competing with it on a fair basis, but can petition to enjoin them from creating a substantially similar system of utility programs.
1. Please answer all the questions.
2. The questions are generally more open-ended than those on a typical in-class exam, especially Question II. (Question I is the only fairly direct question.) Present your answers to the open-ended questions in the form of a short paper. Your grade will, in part, be determined by the quality of your write-up (language, style, clarity, etc.), in addition to your substantive analysis of the issues. Please be concise and economical with words - don't be prolix!
3. Hand your completed exam in on Monday, June 11, between 10 and 11 am, to either Meiring (Terman room 409), Elizabeth (Room 477), or Siubhan (Room 413).

QUESTION I  [ 10 Points]

CarbonCopy (CC) manufactures and sells technologically complex, high-volume photocopiers. This equipment is serviced by CC and also by independent service organizations (ISOs).

CC provides to its customers service and parts for its equipment. It produces some of the parts itself, while the rest are made to order for CC by independent original equipment manufacturers (OEMs).

At some point, ISOs began repairing and servicing CC equipment at substantially lower prices than CC. Some of the ISO customers purchased their own parts and hired ISOs only for service. Others chose ISOs to supply both service and parts. ISOs kept an inventory of parts, which were purchased either from CC or from other sources, primarily OEMs.
Alarmed by the competition, CC responded by implementing a policy of selling replacement parts for equipment only to buyers of CC equipment who also use CC service or who repair their own machines. CC also sought to limit ISO access to other sources of CC parts. CC and the OEMs agreed that the OEMs would not sell to anyone other than CC those parts fitting CC equipment. CC also pressured CC equipment owners and independent parts distributors not to sell CC parts to ISOs. Due to these actions, ISOs were unable to obtain parts from reliable sources, and many were forced out of business.

The ISOs sued CC, alleging that the policies adopted by CC limited the availability of equipment parts to ISOs, making it harder for the ISOs to compete with CC in servicing CC equipment, causing economic hardship to many and forcing some out of business. Analyze the strength of the ISOs' case under the antitrust laws.

**QUESTION II  [ 20 Points]**

Leonardo Grim-Baldy feels increasingly oppressed and frustrated by hairy people. In order to extract his revenge on the hirsute, he reinvents himself as a hairdresser with a trigger-happy scissors finger. Leo does not get much satisfaction from his first customer, Trevor Hairold Oil-Slick, who just stopped by for his weekly oil check. Leo has even less luck with Rusty Garbler, but that's another story. His third customer, Anne Hairy, is much more promising butchering material, and she leaves a lot of hair behind.

A cheerful medical professor, Andy Cadaver, and his partner, a cellular biologist named Lab-Rat Gok-Cell, collect hair samples from the floor of Leonardo's shop, and produce a clone of Anne. They promptly obtain a patent for the clone.

Provide a critical evaluation of Anne's legal rights and position. If you feel current law is "wrong" or "inadequate", supplement your legal arguments with a public policy analysis of how the law should be changed. You are encouraged to approach the issues in terms of viewpoints, discipline(s), concepts, theories, and ideas that you are interested in and familiar with. (You may, for instance, choose to emphasize ethical aspects, scientific policy issues, etc., to complement your legal analysis.)
**QUESTION III  [ 10 Points]**

(a) Briefly discuss the philosophy of fuzzy logic in terms of set membership and the concept of a membership function. [You should be able to do this in less than one page!]

(b) Suppose you are a technical advisor to the Assistant Attorney General of the Antitrust Division. You are given the problem of deciding whether a merger of two competitors should be allowed to proceed, or whether it should be struck on the grounds that the merger will unacceptably diminish competition in the particular industry. Describe a fuzzy logic approach to measuring the appropriateness (from an antitrust perspective) of a proposed corporate merger. Provide a precise definition of your membership functions. Provide an expression for a fuzzy measure of merger desirability, and simplify the expression as much as possible.

**QUESTION IV  [ 10 Points]**

A. Analyze the patentability of a computer virus.

B. New Age musician, Jennifer Fugue, creator of the contrapuntal innovation that carries her name, and her chief drummer, Joseph "The Banging Huang," have formed a music producing and distribution company, called J&J. They were formerly classmates at the Mountain View Zippy Arts Institute (M.O.Z.art). J and J also acquired computer skills at M.O.Z.art. It was therefore perhaps inevitable that they would jump on the Internet bandwagon and combine their musical talents with their programming talents, to launch a new e-product. One of their innovations is a software package that facilitates composition and on-line distribution of various kinds of music. The software is marketed under the trademark, "Can&String."

Their first customer is Renaissance composer, Jazz-Muzik ("Jazz" to his friends) Gaddoura. Unfortunately for Jazz, his copy of Can&String contains a particularly malicious computer virus strain that corrupts his hard disk and erases two years of work, including a major new symphony he had planned to release at the upcoming San Francisco Baroque Festival. To say that Jazz is deeply annoyed is an understatement. Not only has he lost the fruit of his dedicated labors, but his reputation has suffered irreparable harm. Unbelievably and distressingly, a story in the Enquirer had even mockingly referred to him as the "composer of the Unbegun Symphony." He decides to sue J&J under product liability law, for producing and marketing a defective product. Analyze the strength of Jazz' case.
The ISOs may allege that CarbonCopy unlawfully tied the sale of service of CC machines to the sale of parts. Such an arrangement violates § 1 of the Sherman Act if the seller has tied the sale of two products and has economic power in the market for the tying product.

Five-part test for the illegality of a tie-in: (i) There must be separate tying and tied products. Two items should be considered a single product under the law of tying arrangements if there were obvious economies of joint provision; (ii) Evidence of actual coercion by seller forcing buyer to accept tied product; (iii) Seller possesses market power in tying market; (iv) anticompetitive effects in tied market; and (v) Substantial commerce in tied product market. The courts also consider consumer welfare in deciding, for instance, whether a tying and tied product are legally a single product.

For service and parts to be considered two distinct products, there must be sufficient consumer demand so that it would be efficient for a firm to provide service seperately from parts. The decision whether two products constitute one integrated product in the legal sense, depends on considerations of consumer welfare and efficiency.

CC may argue that because service and parts are functionally linked, they constitute an integrated product. However, this argument would be struck down, as there is ample precedent where tying functionally linked products would be considered illegal tying, e.g. computers and software (coercion to use only software produced by Apple on your Macintosh would be illegal, for instance.)
Did CC have substantial **power** in the tying market? Market power is the power to force consumers to do something they would not do in a competitive market. It has been **defined** as the ability of a single seller to **raise price and restrict output**, and is inferred from the seller's possession of a **dominant share of a relevant product market**. The ISOs would have to prove that the market for copiers constitutes a relevant product market, and that CC has a large share of this market.

The ISOs may base their claim that CC has market power in the copier market on economic evidence. They may argue that CC's control over the parts market has excluded service competition, boosted service prices, and forced unwilling consumption of CC service. To bolster their claim, the ISOs may introduce evidence that consumers have switched to CC service even though they preferred ISO service, that CC service was of higher price and lower quality than the preferred ISO service, and that ISOs were driven out of business by CC's policies.

CC may respond that even though they have a larger share of the **market for parts**, it is **not a relevant product market**. They cannot impose a nontransitory price increase in this market without losing so many customers so as to make the price increase unprofitable. The reason is the existence of competition in the equipment (copier) market. If CC were to raise the prices of parts and service to supracompetitive levels, any increased profitability in the parts and service market would be more than offset by a corresponding loss in profits from lower equipment sales, as consumers switch to other copier products which offer better service terms.

The extent to which one market prevents exploitation of another depends on the extent to which consumers will change their consumption of one product in response to a price change in another. In this sense, competition in the equipment market may impose a restraint on prices in the aftermarket (market for parts and services.) However, **competition in the equipment market can coexist with market power** in the aftermarket, under certain conditions.

These conditions include **significant information and switching costs**. For the service price to affect equipment demand, consumers must inform themselves of the total cost of the package (equipment, service and parts) at the time of purchase, i.e., they must be capable of life-cycle pricing. Life-cycle pricing of complex equipment is costly and difficult, and require substantial data gathering and analysis, including data on price, quality, availability of products needed to upgrade the initial equipment, as well as service and repair costs, including estimates of breakdown frequency, nature of repairs, price of service and parts, lengths of downtime, and losses incurred from downtime. Even if consumers are capable of these calculations, they may choose not to expend the time and resources to do so, especially if the expected cost of service is small compared to the cost of the equipment. Furthermore, customers who have already
purchased CC equipment are "locked in," and will tolerate a price increase before changing
equipment brands.

Hence, CC may have a "captive" customer base enabling them to charge a monopolistic
price in the aftermarket, if customers cannot or will not switch away from supracompetitive
prices in the aftermarket.

There is ample evidence of actual coercion in the hypothetical.

**QUESTION IV [ 10 Points]**

A. Credit for looking up the definition of a computer virus: A computer virus is a program, i.e.,
a series of instructions, that (i) infects other computer programs and systems by attaching itself
to a host program in the target system, (ii) executes when the host is executed, and (iii) spreads
by cloning itself, or part of itself, and attaching its copies to other host programs on the system
or network. In addition to self-replication code, virus code also contains a component capable
of creating side-effects, such as destruction or corruption of data.

A virus is a computer program, and as such may likely be copyright protectable and, in
special circumstances, patentable. First, a device must be novel, original and useful to be
patentable. Is a virus useful? A solely destructive virus would probably not be considered useful
by the Patent Office, hence will not be patentable. There are useful viruses, such as viruses that
gather information on the operation of a user's own computer system or network. [Credit for at
least contemplating the possibility of a useful virus, even if not fully conceptualized.] Novel and
original analyzed in conventional way.

Policy consideration: Should the Patent Office encourage production of viruses?

A law of nature, including its mathematical expression, is not patentable. Such laws,
"created by Nature," are the fundamental building blocks of science, and as such, should not be
monopolized by anyone. By logical extension, a computer program that merely implements such
a law, should likewise not be patentable. A virus that merely executes or replicates according to
a mathematical formula would not be patentable.

A virus may be patentable as a process. In *Gottschalk v. Benson* (1972), the Court
formulated the test: "Transformation and reduction of an article 'to a different state or thing' is the
cue to the patentability of a process claim that does not include particular machines." A virus
that plays a crucial part in transforming a physical entity and does so in a way that could be
considered "useful," may pass this test. Viruses often destroy data, but could conceivably
perform functions such as encrypting data to avoid a security breach. Encryption could be
considered transformation of the data. The issue to be analyzed is whether data or information
constitute an "article" to satisfy the Benson test. [Student not required to get into this analysis, but awareness of the issue should be credited.]

**Useful task test:** In *Parker v. Flook* (1978), the Supreme Court held that a process utilizing a scientific principle is patentable only if the "process itself, not merely the mathematical algorithm, [is] new and useful." The Court emphasized that an algorithm may be patentable, but only if the claim demonstrates novelty and usefulness independent of and in addition to, the law of nature. A virus is essentially an algorithm. If it is part of a computer system that performs a useful task, the system as a whole, including the virus algorithm, may be patented.

This principle is consistent with *Diamond v. Diehr* (1981), in which the Supreme Court held that a method for curing rubber constitutes a patentable process, satisfying the Benson principle, namely "transformation and reduction of an article to a different state." Here, the patent was for an algorithm that was part of a system that transformed rubber from one state to another.

The use of a mathematical formula, algorithm and programmed computer in the process did not alter the court's conclusion that the process is patentable, which favors patentability of a virus.

**Tangible usefulness test:** Subsequent cases involving patent applications where a computer was involved, have framed the issue in terms of practical application and tangible utility: Is the computer, program, or algorithm, applied in a way that produces "a useful, concrete and tangible result." Is data/information sufficiently tangible? Provide example of virus that achieves unambiguously tangible result.

A 1994 Federal Circuit decision, *In Re Alappat*, confirmed the patentability of software. The case involved the patentability of an anti-aliasing line-generating algorithm for a video display terminal. This patent involved switching on pixels on a computer screen according to a mathematical formula. A task of this kind could be performed by a virus; the usefulness hurdle should still be cleared.

**B. First hurdle: Software as a "product."** Mass produced shrink-wrap software usually considered product; customized software a service. Software in this case seems to be the former, hence a product under product liability laws.

Plaintiff must prove the following elements: (i) product was defective when left hands of manufacturer; (ii) defect made product unreasonably dangerous.

1. Manufacturing defect: Deviates from blueprint. Reasonable to assume virus was not part of design; hence, presence of virus = manuf. defect.
2. Design defect: Big issue is risk/utility analysis. Give generous credit for creative arguments.
3. Inadequate warnings: Did software carry warnings, e.g. software has not been scanned for viruses, user use at own risk, etc. Note: warning does not excuse defectively designed or manufactured product.

Causation: Virus transmitted must be of kind that reasonable care would have avoided, in order to establish cause-in-fact. Proximate cause depends on foreseeability and intervening causes/events. Neither foreseeability nor intervening events appear to present an obstacle to Jazz.