1. (25) Briefly comment on the possible context in the following quotes. There could be more than one correct context for each and some may take a considerable amount of thought. Additionally, identify “they”, “these instances”, or “it”
   a) “They can’t sense anything! They have no nervous system. How can you call them human?”
   b) “They don’t care about people. Their credo is ‘the greatest benefit for the greatest number’.”
   c) “The best available is nothing, so use of a placebo in these instances is justified.”
   d) “I don’t care if it does provide us with unlimited access to a malaria drug. That’s way too close to playing God.”
   e) “I understand the need to address genetic diseases, but to use it to select hair color is going too far.”

2. (10) According to Michael Gazzaniga, the conferring of moral status on an embryo is a complex, multifaceted process. How would he respond to the following arguments (agree or disagree)? Briefly explain.
   a) “I feel the intentions of the parents are critical to assigning status. An embryo in a dish does not have the same status as an implanted one.”
   b) “A clump of cells grown from a fertilized embryo is decidedly, a human being.”

3. (20) The probability of vertical transmission of HIV from an affected mother to an unborn child are greater than 60%. The clinical trials using AZT in Uganda and Kenya were administered by clinicians and researchers from the United States (N.I.H. and C.D.C.) and arguably have saved tens of thousands of lives (70% decrease in vertical transmission). Despite this, there was an outcry against these studies on many levels (primarily in the U.S.A. interestingly).
   a) Define and explain the purpose of a double-blind placebo clinical trial.
   b) Why were ethicists upset about the use of placebos?
   c) What do you think was the primary goal of this trial?
   d) Was the research intended to benefit citizens of Uganda?
   e) Is it ethical if it benefits citizens two or three generations down the road, but not participants?
   f) Was there necessarily individual informed consent? Why or why not?
   g) Explain the ethical and cultural aspects with regard to administration and follow-up that make this a difficult situation.
4. (10) According to the Helsinki directives on the Experimentation on Human Subjects, outline some of the difficulties intrinsic in the design of an "ethical" and successful HIV transmission trial in a developing country? Is it easier to carry out such a trial in the United States? Explain why or why not citing specific aspects of the directives.

5. (10) Jesse Gelsinger died in a gene therapy trial at Penn several years ago. What was the goal of the trial and what were the main ethical lapses that were unveiled subsequent to the trial.

6. (10) Using the Helsinki directives on the Experimentation on Human Subjects (you should have a copy; if not, see me), outline some of the difficulties intrinsic in the design of an "ethical" and successful gene therapy trial.

7. (15) The article below, “A Tough Ethical Call” from *Time* (Oct. 27, 2003) raises a number of issues pertinent to our course. Summarize the research that was unveiled at the medical conference in Texas. Using this technology, the embryo is biologically related to both parents; this is similar in many respects to embryos derived in IVF. What do the authors mean by the term “not quite cloning” (how is this procedure similar to human cloning)? What is it about this technique that people object to? What is the conceptual slippery slope in this case?

DEPENDING ON WHOM you ask, the experiment announced at a Texas medical conference last week was a potential breakthrough for infertile women, a tragic failure or a dangerous step closer to the nightmare scenario of human cloning.

There's truth to all these points of view. Infertility was clearly the motivation when Chinese doctors used a new technique to help one of their countrywomen get pregnant. Unlike some infertile women, the 30-year-old patient produced eggs just fine, and those eggs could be fertilized by sperm. But they never developed properly, largely because of defects in parts of the egg outside the fertilized nucleus.

So using a technique developed by Dr. James Grifo at New York University, Dr. Zhuang Guanglun of Sun Yat-sen University in Guangzhou took the patient's fertilized egg, scooped out the chromosome-bearing nuclear material and put it in a donated egg whose nucleus had been removed. In this more benign environment, development proceeded normally, and the woman became pregnant with triplets who carried a mix of her DNA and her husband's—pretty much like any normal baby.

What has some doctors and ethicists upset is that this so-called nuclear-transfer technique has also been used to produce clones, starting with Dolly the sheep. The only significant difference is that with cloning, the inserted nucleus comes from a single, usually adult, cell, and the resulting offspring is genetically identical to the parent. Doing that with humans is ethically repugnant to many. Besides, for reasons that aren't yet well understood, cloned animals often abort spontaneously or are born with defects; Dolly died very young, though she had seemed healthy. And because the Chinese woman's twins were born prematurely and died (the third triplet was removed early on to improve chances for the remaining two), critics have suggested that cloning and nuclear transfer are equally risky for humans.

Not likely, says Grifo. "The obstetric outcome was a disaster," he admits, "but the embryos were chromosomally normal. We have no evidence that it had anything to do with the procedure." Even so, concern over potential risks is why the Food and Drug Administration created a stringent approval process for such research in 2001—a process that Grifo found so onerous that he stopped working on the
technique and gave it to the researchers in China, where it was subsequently banned (but only this month, long after Zhuang's patient became pregnant).

The bottom line, say critics, is that perfecting a technique that could be used for human cloning, even if it were developed for another purpose, is just a bad idea—an assertion Zhuang rejects. "I agree that it makes sense to control these experiments," he says. "But we've developed an effective technology to help people. We understand how to do it. We need it." -Reported by Susan Jakes/Beijing and Sora Song/New York.

8. (10) Comment John Cole’s cartoon below. On the can, it says “Ingredients: Amino acids, proteins and lots of junk”. Comment on the vantage point in this cartoon. In your brief commentary, explain what you think Cole means by “junk”.

![Cartoon Image]