

BioE 100 Mid Term Exam March 16, 2010

Name _____ Student ID _____

ETHICAL CONCEPTS: TRUE OR FALSE (40 POINTS)

- Information technologies ethics is concerned with privacy, ownership, and access.
- The Belmont Report codifies research ethics on animal experimentation.
- The primaefacie duty of corporate leaders is that their shareholders make a profit.
- Jeremy Bentham asked "The question is whether they (animals) can understand".
- Telling a lie is ethical in some situations according to Kant.
- Company credo is a formal statement meant to guide corporate professionals on ethical conduct.
- All emerging biotechnologies eventually become zero-risk.
- An IRB is a group that reviews/monitors research involving human subjects.
- Research misconduct does not include honest error or differences of interpretation of valid data.
- Conflict of interest is dilemma between private interests and official responsibilities.
- Slippery slope theory argues that a reasonable act might lead to a bad ethical consequence.
- The first article of the Nuremburg Code laid down the principles of informed consent.
- Non-maleficance is to not cause reckless or careless harm.
- Ad Hominem is permissible during debate because it supports the moral argument.
- Rawlings statement: "ethics is not a matter of consequence but of duty".
- Autonomy is often used synonymously with rights ethics.
- Descartes believed that humans have only "res extensa" or extended "physical stuff".
- Peter Singer's ethical position on animal research is a complete ban on its practice.
- The USDA supports the use of the 5R's in animal research conduct.
- In human research, justice ethics concerns the fair selection of human research subjects.

ETHICAL FRAMEWORKS: MULTIPLE CHOICE (50 POINTS)

21. Listing an author on a publication, who is not involved in the research, because of their status

- a. honorary authorship
- b. ghost authorship
- c. deserved authorship
- d. none of the above

22. Finding of research misconduct

- a. departure from accepted practices of research
- b. misconduct is committed intentionally
- c. proven on preponderance of evidence
- d. all of the above

23. Which of the following are types of intellectual property protection

- a. Patents
- b. Trademarks
- c. Copyright
- d. All of the above

24. Acceptable tactics in debate argument include

- a. ad hominem statements
- b. making an evaluative premise
- c. begging the question
- d. None of the above

25. Moral calculus based on "desire", "preferences", "intention", "understanding."

- a. rights ethics
- b. hedonistic utilitarianism
- c. preference utilitarianism
- d. none of the above

26. Where it is impossible to avoid harming human and non-human individuals,

- a. use mini-ride principle
- b. use worse-off principle
- c. all of the above
- d. none of the above

27. Moral calculus based on balance of happiness and physical pain

- a. preference utilitarianism
- b. hedonistic utilitarianism
- c. rights ethics
- d. none of the above

28. Assessment of whether animals are capable of feeling pain include

- a. an evolutionary function for pain
- b. having moral reasoning
- c. whether a "marginal" case
- d. none of the above

29. Ethical theories surrounding animal research

- a. utilitarianism
- b. human dominion
- c. animal rights
- d. all of the above

30. Rules ethics advocates for a society of moral and legal rules, backed by

- a. force of opinion and law
- b. informed consent
- c. Virtue ethics
- d. none of the above

USE OF ETHICAL FRAMEWORKS: SHORT ANSWER (75 POINTS)

31. In the Belmont report, three basic ethical principles were used to codify human research practice through (1) Informed consent, (2) Assessment of Risk and Benefits, and (3) Selection of Subjects. For each define the ethical framework and how it applies to each human research practice component

32. In District 9, when Wikus's left forearm is found to have mutated into an alien appendage, he is immediately taken into MultiNational United (MNU) custody where it is discovered that he can operate alien weaponry due to his fast mutating DNA. The MNU scientists decide to use his body for research to discover how the weaponry works- with the possibility of great profit. Using one of the following ethical frameworks or documents: Peter Singer's Specieism, the Belmont Report, or Corporate Ethics, decide if MNU's intended actions are ethically appropriate.

33. Name and describe one ethical framework that applied to science journalism of the lecture by Rob Gunnison or interview of Victor Limjoco

ETHICAL CASE STUDIES: (150 POINTS)

34. Research Conduct. Robert A. Millikan was the most famous U.S. scientist of his time, winning the Nobel Prize in 1924, for determining the charge on the electron. Millikan's method involved allowing a droplet to fall between two plates, and then an electric field is created which pulls the droplet upwards. The speed of the droplet, or its rise time, is measured and depends on its charge. If electrons had a spectrum of charges, one would expect a corresponding continuous spectrum of rise times. If, on the other hand, all electrons had the same charge, the rise times would be multiples of a single number. Millikan published tables of his measured drops and their rise times. What these tables indicated was that the charges on the droplets were, indeed, multiples of the same number -- thus, the charge of the electron was a single well-defined value. However, later examination of Millikan's own papers and notebooks reveals that he picked and chose among his drops, leaving many observations out- based on his expectation of what the electron charge should be from theoretical calculations. Ultimately, we know that Millikan was right- to the best of our present experimental and theoretical knowledge: electrons have a specific, discrete charge. Using the 4A's, decide on how Mullikan might have chosen a different ethical course of action.

Name Stakeholders and at least 2 Alternatives

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Assess the Alternatives against Ethical Theories

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Describe course of action

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36. Human Experimentation/Scarce Medical Resources. PolyHeme is a temporary oxygen-carrying blood substitute made from human hemoglobin that is currently in development for emergency treatment of trauma situations where large volumes of blood are lost and there is no time to do blood typing; PolyHeme has no antigens and thus avoids a negative immunological response. Blood substitutes are useful because while donations are increasing by about 2-3% annually in the United States, demand is climbing by ~6-8% due to an aging population that requires more operations that often involve blood transfusions. Furthermore it is safer in third-world countries since blood transfusion is a very large source of new HIV infections, and in battlefield scenarios in which the armed services would benefit from a safe, easy way to manage blood supply in the field. However, recent clinical Phase 3 trials on trauma patients showed significantly higher level of death for PolyHeme transfusions (13.9%) vs. natural blood transfusions (9.6%). Use the 4As, emphasizing ethical principles of non-maleficance, autonomy, and utilitarianism, to decide whether this area of experimental medical research should move forward for additional clinical trials. You may assume that the information in the problem is complete for the facts, and consider the following three alternatives

The 4A's: Acquire Facts (given), Alternatives (given), Assessment, and Action

- (1) Do not allow additional clinical trials
- (2) Formulate informed consent document that disclose facts, leave research design in place.
- (3) Halt the study for 3 years to have the research team reformulate the research protocol