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Exercise 1

Questions 1 to 3 are based on the following reading passage.

Immediately relevant to game theory are the sex ratios in certain parasitic wasp species that have a large excess of females. In these species, fertilized eggs *Line* develop into females and unfertilized eggs into males.

- A female stores sperm and can determine the sex of each egg she lays by fertilizing it or leaving it unfertilized. By Fisher's genetic argument that the sex ratio will be favored which maximizes the number of descendants an individual will have and hence the number of gene copies transmitted, it should pay a
- female to produce equal numbers of sons and daughters. Hamilton, noting that the eggs develop within their host—the larva of another insect—and that the newly emerged adult wasps mate immediately and disperse, offered a remarkably cogent analysis. Since only one
- female usually lays eggs in a given larva, it would pay her to produce one male only, because this one male could fertilize all his sisters on emergence. Like Fisher, Hamilton looked for an evolutionarily stable strategy,
- 20 but he went a step further in *recognizing* that he was looking for a strategy.





- 1. The author suggests that the work of Fisher and Hamilton was similar in that both scientists
- (A) conducted their research at approximately the same time
- (B) sought to manipulate the sex ratios of some of the animals they studied
- (C) sought an explanation of why certain sex ratios exist and remain stable
- (D) studied game theory, thereby providing important groundwork for the later development of strategy theory
- (E) studied reproduction in the same animal species

For the following question, consider each of the choices separately and select all that apply

- 2. The passage contains information that would answer which of the following questions about wasps?
- A How many eggs does the female wasp usually lay in a single host larva?
- B Can some species of wasp determine sex ratios among their offspring?
- What is the approximate sex ratio among the offspring of parasitic wasps?
- 3. Which of the following is NOT true of the species of parasitic wasps discussed in the passage?
- (A) Adult female wasps are capable of storing sperm.
- (B) Female wasps lay their eggs in the larvae of other insects.
- (C) The adult female wasp can be fertilized by a male that was hatched in the same larva as herself.
- (D) So few male wasps are produced that extinction is almost certain.
- (E) Male wasps do not emerge from their hosts until they reach sexual maturity.



before industrialization.

Questions 4 to 5 are based on the following reading passage.

Tocqueville, apparently, was wrong. Jacksonian America was not a fluid, egalitarian society where individual wealth and poverty were ephemeral

Line conditions. At least to argues E. Pessen in his

5 iconoclastic study of the very rich in the United States between 1825 and 1850.

Pessen does present a quantity of examples, together with some refreshingly intelligible statistics, to establish the existence of an inordinately wealthy class. Though active in commerce or the professions, most of the wealthy were not self-made, but had inherited family fortunes. In no sense mercurial, these great fortunes survived the financial panics that destroyed lesser ones. Indeed, in several cities the wealthiest one percent constantly increased its share until by 1850 it owned half of the community's wealth. Although these observations are true, Pessen overestimates their importance by concluding from them that the undoubted progress toward inequality in the late eighteenth century continued in the Jacksonian period and that the United States was a class-ridden, plutocratic society even



(162 words)

- 4. According to the passage, Pessen indicates that all of the following were true of the very wealthy in the United States between 1825 and 1850 EXCEPT:
- (A) They formed a distinct upper class.
- (B) Many of them were able to increase their holdings.
- (C)Some of them worked as professionals or in business.
- (D) Most of them accumulated their own fortunes.
- (E) Many of them retained their wealth in spite of financial upheavals.
- 5. Which of the following best states the author's main point?
 - (A) Pessen's study has overturned the previously established view of the social and economic structure of early nineteenth-century America.
 - (B) Tocqueville's analysis of the United States in the Jacksonian era remains the definitive account of this period.
 - (C) Pessen's study is valuable primarily because it shows the continuity of the social system in the United States throughout the nineteenth century.
 - (D) The social patterns and political power of the extremely wealthy in the United States between 1825 and 1850 are well documented.
 - (E) Pessen challenges a view of the social and economic system in the United States from 1825 to 1850, but he draws conclusions that are incorrect.





Anaerobic glycolysis is a process in which energy is produced, without oxygen, through the breakdown of muscle glycogen into lactic acid and adenosine tri
Line phosphate (ATP), the energy provider. The amount

of energy that can be produced anaerobically is a function of the amount of glycogen present—in all vertebrates about 0.5 percent of their muscles' wet weight. Thus the anaerobic energy reserves of a vertebrate are proportional to the size of the animal. If, for example, some predators had attacked a 100-ton dinosaur, normally torpid, the dinosaur would have been able to generate almost instantaneously, via anaerobic glycolysis, the energy of 3,000 humans at

maximum oxidative metabolic energy production.

- 6. The passage's suggestion that the total anaerobic energy reserves of a vertebrate are proportional to the vertebrate's size is based on which of the following assumption?
 - (A) larger vertebrates conserve more energy than smaller vertebrates
 - (B) larger vertebrates use less oxygen per unit weight than smaller vertebrates
 - (C) the ability of a vertebrate to consume food is a function of its size
 - (D) the amount of muscle tissue in a vertebrate is directly related to its size
 - (E) the size of a vertebrate is proportional to the quantity of energy it can utilize











Extraordinary creative activity has been characterized as revolutionary, flying in the face of what is established and producing not what is acceptable but what will Line become accepted. According to this formulation, highly 5 creative activity transcends the limits of an existing form and establishes a new principle of organization. However, the idea that extraordinary creativity transcends established limits in misleading when it is applied to the arts, even though it may be valid for the sciences.

Difference between highly creative art and highly creative science arise in part from a difference in their goals. For the sciences, a new theory is the goal and end result of the creative act. Innovative science produces new propositions in terms of which diverse phenomena can be related to one another in more coherent ways. Such

related to one another in more coherent ways. Such phenomena as a brilliant diamond or a nesting bird are relegated to the role of data, serving as the means for formulating or testing a new theory. The goal of highly creative art is very different: the phenomenon itself becomes the direct product of the creative act.

20 becomes the direct product of the creative act. Shakespeare's *Hamlet* is not a tract about the behavior of indecisive princes or the uses of political power; nor is Picasso's painting *Guernica* primarily a propositional statement about the Spanish Civil War or the evils of

fascism. What highly creative artistic activity produces is not a new generalization that transcends established limits, but rather an aesthetic particular. Aesthetic particulars produced by the highly creative artist extend or exploit, in an innovative way, the limits of an existing form, rather than transcend that form.

This is not to deny that a highly creative artist sometimes establishes a new principle of organization in the history of an artistic field; the composer Monteverdi, who created music of the highest aesthetic value, comes to mind. More generally, however, whether or not a composition establishes a new principle in the history of music has little bearing on its aesthetic worth. Because they embody a new principle of organization, some musical works, such as the operas of the Florentine

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Camerata, are of signal historical importance, but few listeners or musicologists would include these among the great works of music. On the other hand, Mozart's *The Marriage of Figaro* is surely among the masterpieces of music even though its modest innovations are confined to extending existing means. It has been said of

Beethoven that he toppled the rules and freed music from the stifling confines of convention. But a close

study of his compositions reveals that Beethoven overturned no fundamental rules. Rather, he was an 50 incomparable strategist who exploited limits—the rules, forms, and conventions that he inherited from predecessors such as Haydn and Mozart, Handel and Bach—in strikingly original ways.

(466words)





For the following question, consider each of the choices separately and select all that apply

- 7. The passage supplies information for answering which of the following questions?
 - (A) Has unusual creative activity been characterized as revolutionary?
 - (B) Did Beethoven work within a musical tradition that also included Handel and Bach?
 - (C) Who besides Monteverdi wrote music that the author would consider to embody new principles of organization and to be of high aesthetic value?
- 8. The author regards the idea that all highly creative artistic activity transcends limits with
 - (A) deep skepticism
 - (B) strong indignation
 - (C) marked indifference
 - (D) moderate amusement
 - (E) sharp derision



- 9. The author implies that an innovative scientific contribution is one that
 - (A) is cited with high frequency in the publications of other scientists
 - (B) is accepted immediately by the scientific community
 - (C) does not relegate particulars to the role of data
 - (D) presents the discovery of a new scientific fact
 - (E) introduces a new valid generalization
- 10. Which of the following statements would most logically concluded the last paragraph of the passage?
 - (A) Unlike Beethoven, however, even the greatest of modern composers, such as Stravinsky, did not transcend existing musical forms.
 - (B) In similar fashion, existing musical forms were even further exploited by the next generation of great European composers.
 - (C) Thus, many of the great composers displayed the same combination of talents exhibited by Monteverdi.
 - (D) By contrast, the view that creativity in the arts exploits but does not transcend limits is supported in the field of literature.
 - (E) Actually, Beethoven's most original works were largely unappreciated at the time that they were first performed.





Great comic art is never otherwordly, it does not seek to mystify us, and it does not deny ambiguity by branding as evil whatever differs from good. Great Line comic artists assume that truth may bear all lights, 5 and thus they seek to accentuate contradictions in social action, not gloss over or transcend them by appeals to extrasocial symbols of divine ends, cosmic purpose, or laws of nature. The moment of transcendence in great comic art is a social moment, born out of the conviction that we are human, even 10 though we try to be gods. The comic community to which artists address themselves is a community of reasoning, loving, joyful, compassionate beings, who are willing to assume the human risks of acting rationally. Without invoking gods or demons, great 15 comic art arouses courage in reason, courage which grows out of trust in what human beings can do as humans.



- 11. Select the sentence in the passage that suggests that great comic art can be characterized as optimistic about the ability of humans to act rationally.
- 12. It can be inferred from the passage that the author admires great comic artists primarily for their
 - (A) ability to understand the frequently subtle differences between good and evil
 - (B) ability to reconcile the contradictions in human behavior
 - (C) ability to distinguish between rational and irrational behavior
 - (D) insistence on confronting the truth about the human condition
 - (E) insistence on condemning human faults and weaknesses
- 13. Which of the following is the most accurate description of the organization of the passage?
 - (A) A sequence of observations leading to a prediction
 - (B) A list of inferences drawn from facts stated at the beginning of the passage
 - (C) A series of assertions related to one general subject
 - (D) A statement of the major idea, followed by specific examples
 - (E) A succession of ideas moving from specific to general





