Exam I will be based on information in the following questions and in-class team assignments. Sources for the answers include:
– Hackett chapters 1 thru 5
– lectures thru 2 Feb
– in-class team activities

Exam questions will be drawn only from these sources. Exam questions may be reproduced as they are shown here, or they may be revised (multiple choice questions may be re-phrased as short answer questions, or short answer questions as multiple questions, or multiple choice questions may be re-stated to focus on another aspect of the same question.) Question sources that may not be included here are from the guest instructor lecture. You may study with other students in this class.

Exam I will be given Tuesday 7 Feb, 9-1015 a.m., and will be closed book, closed notes.

SECTION I. MULTIPLE CHOICE: Circle the best answer.

1. __________________ are costs or benefits that do not accrue to the economic unit that creates them.
   a. Public goods
   b. Externalities
   c. Inputs
   d. Labor and management
   e. all of the above
   f. none of the above

2. Sources of market failure include:
   a. labor and management
   b. expensive inputs
   c. imperfect competition
   d. supply
   e. demand
   f. imperfect information
   g. both a & b
   h. both c & f
   i. all of the above
   j. none of the above
3. Sanders, in lecture notes, indicates that Natural Resource Economics includes the application of economics to manage ________________ resources for human needs/wants with ________________ as the primary goal.
   a. naturally occurring, protection
   b. human made, efficiency
   c. naturally occurring, efficiency
   d. human made, protection
   e. both a & b
   f. none of the above

4. Hackett states that it is difficult to exclude access for ________________ resources, but once extraction takes place that amount is no longer available to others.
   a. natural
   b. environmental
   c. common-pool
   d. trans-generation
   e. none of the above

5. External benefits are a result of a ________________, while external costs are a result of a ________________.
   a. high pollution, lack of flu shots
   b. positive externality, negative externality
   c. strong demand, weak supply
   d. weak demand, strong supply
   e. all of the above
   f. none of the above

6. Market efficiency issues include:
   a. equity & dynamic efficiency
   b. political dynamics
   c. institutional arrangements
   d. Pigou and Coase
   e. all of the above
   f. none of the above

7. Trade permits in the market that are intended to equate marginal costs across polluters are ________________.
   a. dollars
   b. marginal external costs
   c. dynamic permits
   d. marketable pollution permits
   e. all of the above
   f. none of the above
8. The lecture notes suggest that linking the physical, natural and economic system is likely to result in
   a. more efficient functioning of the system.
   b. less efficiency in the system.
   c. less equity for future generations.
   d. unethical behavior by many economic agents.
   e. more understanding about the world we live in.
   f. both a & e
   g. a, c, d
   h. all of the above
   i. none of the above

9. According to Sanders, framing natural resource issues includes consideration of
   a. irreversibility
   b. geographic scope
   c. property rights
   d. time span
   e. quantity and quality of land, water, air, energy
   f. all of the above
   g. none of the above

10. Environmental statements that include such words as “should”, “ought”, and “right” indicate that these are __________________________ statements.
    a. economic
    b. ethical
    c. natural resource
    d. political
    e. all of the above
    f. none of the above

11. Classify this statement: “All life should be protected because it is sacred.”
    a. deontological
    b. teleological
    c. utilitarian
    d. anthropocentric
    e. both c & d
    f. none of the above
12. Classify this statement: “The decision to invest in water conservation should be based on net benefits of the project.”
   a. deontological
   b. teleological
   c. Rawlsian
   d. anthropocentric
   e. both b & d
   f. none of the above

13. All of the following are examples of utilitarian principles and economics except:
   a. benefit cost analysis
   b. Pareto efficiency criterion
   c. Kaldor-Hicks criterion
   d. Rawls’ Justice theory
   e. all of the above are utilitarian concepts

14. Examples of market failure include:
   a. steel production pollution
   b. crop production with soil erosion
   c. animal production with water pollution
   d. inadequate levels of flu shots
   e. inadequate levels of birth control
   f. all of the above
   g. none of the above

15. Examples of market failure on the cost (supply) side include:
   a. steel production pollution
   b. crop production with soil erosion
   c. animal production with water pollution
   d. inadequate levels of flu shots
   e. inadequate levels of birth control
   f. a, b, c
   g. d, e
   h. all of the above
   i. none of the above

16. The key difference between static and dynamic efficiency is:
   a. how opportunity cost is handled.
   b. how time is handled.
   c. how government is involved.
   d. assumptions about the global economy.
   e. none of the above.
17. For a(n) _____________________________ externality, property rights are insufficient or unenforceable to prevent general use, leading to destruction, diminishment, or damage of the resource.
   a. positive
   b. negative
   c. open-access
   d. nonmarket
   e. none of the above.

18. Property rights for land in the US are based on __________________________, are __________________________, __________________________, and carry __________________________ responsibilities.
   a. fee simple ownership, not absolute, evolve in court cases and law, legal and ethical
   b. chattel law, absolute, evolve in the market place, very few
   c. the party in political power, absolute, do not evolve, political and economic
   d. regulatory procedures, limited by moral standards, given by the government, common property
   e. none of the above

19. Reasons to study Natural Resource Economics include all of the following except:
   a. Economics may “assume” the problem away.
   b. There is a commonly accepted decision process in Natural Sciences.
   c. Market failure.
   d. Joint importance of economic and ecological systems.
   e. Irreversibility.

20. One type of government intervention to resolve market failure is __________________________, which includes constraints with penalties and fines such as pesticide use labels and feedlot regulations.
   a. moral suasion
   b. government production of environmental quality
   c. command and control regulations
   d. economic incentives
   e. the public auction
   f. declaration of war
   g. none of the above

21. According to Jeremy Bentham, an effective and ethical policy is one
   a. that maximizes profit for corporations.
   b. that best instills a system of deontological ethics.
   c. that maximizes the net utility to society relative to all other options under consideration.
   d. That does not reduce the utility of any member of society.
22. Positive Economics is ...
   a. A method of analysis based on the western scientific tradition of modeling
      the world, then subjecting these models to empirical testing.
   b. A method of analysis based on determining the best course of action for a
      given objective and set of constraints.
   c. The process of comprehensively measuring and then adding up all of the
      positive and negative utility values associated with various social policy
      alternatives, and then choosing the policy with the largest net positive
      social value.
   d. A method of selecting “efficient” social policies, and utilizes the rule that
      the efficient policy alternative contributes the largest overall increase in
      Gross Domestic Product (GDP).

23. Market capitalism is defined as ...
   a. A socio-economic system in which scarce resources are owned by
      corporations and allocated by way of complex systems of gift exchange.
   b. A socio-economic system in which scarce resources are allocated by way
      of a complete set of centrally-planned government agencies.
   c. A socio-economic system in which scarce resources are privately rather
      than collectively owned, and these resources are allocated by way of a
      complete set of decentralized markets.
   d. A socio-economic system which establishes markets for resources owned
      by government and community agencies.

24. Which of the following is NOT consistent with the existence of a well-functioning
    competitive market?
   a. Well defined and enforceable private property rights.
   b. Low transaction costs.
   c. The presence of significant positive or negative externalities.
   d. Easy entry and exit into and out of the market.

25. If supply (MC) is expressed as \( P=10+3Q \), and demand (MB) is expressed as
    \( P=50-2Q \), what is the equilibrium quantity in this market?
   a. 100.
   b. 20.
   c. 8.
   d. 4.

26. Using the two equations given in question 25 above, determine the equilibrium
    price:
   a. $34.
   b. $48.
   c. $72.
   d. $100.
27. __________ occurs when a full-information, well-functioning competitive market is in equilibrium:
   a. A fair and equitable distribution of income.
   b. Maximum efficiency, as measured by the sum of producer and consumer surplus.
   c. The satisfaction of all human wants and needs.
   d. Hegemony by a few huge multinational corporations.

28. Which of the following will cause a market failure?
   a. Monopoly supply.
   b. Large numbers of self-interested buyers.
   c. Large number of self-interested sellers, each of whom is small in size relative to the overall market.
   d. Both (a) and (b) above are correct.

29. Negative externalities can be defined as:
   a. External forces such as the price of substitute or complementary goods that shift market demand.
   b. External regulation imposed on firms by government regulatory bodies.
   c. Costs which are borne by the firm, and for which they are compensated by way of market price.
   d. Uncompensated costs generated from market or nonmarket transactions that are borne by others in society.

30. Suppose that supply (MC) is given by the expression P=10+.2Q, the demand (MB) is given by the expression P=90 - 0.05Q. Assume that marginal external cost is $10. Compute the amount of overproduction due to market failure.
   a. 0.
   b. 10.
   c. 25.
   d. 40.

31. Referring back to question 30, compute the implicit price subsidy to consumers that exists in this market as a consequence of unconstrained pollution.
   a. $0.
   b. $2.
   c. $4.
   d. $6.
32. When dealing with the wild resource stock of marine fisheries, a recurrent problem is...
   a. the essentially open access nature of property rights regimes in international waters.
   b. excessive capitalization brought on in part by management based on seasonal closures.
   c. both a & b.
   d. None of the above.

33. When addressing the differences between a common-pool resource (CPR) and a pure public good, one would note that they differ in the following way:
   a. a pure public good lacks the characteristic of multiple individuals appropriating from the resource stock.
   b. a pure public good lacks rivalry in consumption.
   c. a CPR lacks rivalry in consumption.
   d. Free-riding is not a problem associated with the market provision of a pure public good.

34. Market failure results when
   a. marginal social benefits do not equal marginal social costs.
   b. no one will buy the product being offered for sale.
   c. marginal social benefits do not equal marginal private benefits.
   d. none of the above are correct.
   e. either (a) or (c) occur.

35. The addition to cost associated with the production of an additional unit of a good or service is referred to as
   a. marginal user cost.
   b. marginal cost.
   c. marginal extraction cost.
   d. All of the above.

36. Hackett suggests reasons for optimism in Environmental/Natural Resource Economics include all of the following except:
   a. Legislative progress.
   b. Toxic release rates are down.
   c. Over-population and biodiversity concerns.
   d. US competitiveness.
   e. No; all of the above are reasons for optimism.

37. Public goods are distinguished by two primary characteristics:
   a. market failure; high prices
   b. government intervention; high prices
   c. nonrivalry; nonexclusivity.
   d. rivalry; exclusivity.
38. According to lecture there are 3 competing ethical theories on the environment, including:
   a. Anthropocentrism.
   b. Species rights.
   c. Ecocentrism.
   d. All of the above.
   e. (a) & (c)

39. The cost of using gasoline in your car today is the opportunity lost to use that gas to power another car or vehicle. This concept is referred to as _____________.
   a. scarcity
   b. contingent valuation
   c. alternative cost
   d. opportunity cost

40. No matter what the economic system or political structure or culture the key fundamental questions that any human group/community/society must answer include all of the following except:
   a. Where to produce.
   b. What to produce.
   c. How to produce.
   d. Who gets benefits & costs.

41. The Coase Theorem assumes that:
   a. the externality is unnecessary and undesirable.
   b. the market can determine the optimal level of the externality.
   c. transaction costs are small.
   d. all of the above are true.
   e. none of the above are relevant.

42. Natural resources owned by the community are known as _________________. An example includes _____________________.
   a. external resources; a national forest.
   b. cooperatives; residential property.
   c. social property; a church.
   d. common property; a city park.

43. Given MBs = MBp = 100-q, where q refers to the quantity of the good and MCp = q, with MCs = 10 + 2q, the optimal level of output when considering only private cost and benefits is:
   a. 45
   b. 30
   c. 100
   d. 50
44. Given information in 43 above, compute the optimal level when considering social benefits and costs:
   a. 45
   b. 30
   c. 100
   d. 50

45. The key to the property rights concept is:
   a. efficiency will occur if government never intervenes.
   b. the market can resolve any property rights issue.
   c. government only needs to involve itself to clarify private property disputes.
   d. government not only sets the rules and limits of property rights, but may be the only solution to open-access externality property rights issues.
   e. none of the above.

46. One type of economic incentive to improve the quality of natural resources and the environment is __________________________, which establishes a market for polluters and others to conduct trading to equate marginal cost across polluters.
   a. marketable pollution permits
   b. bonding systems
   c. liability systems
   d. pollution subsidies
   e. pollution fines and penalties

47. ______________ is/are resources to which all members of a given society/group have co-equal rights to use. To reduce negative externalities, ___________ or quotas may be necessary.
   a. Contract property; laissez-faire government, permits
   b. Corporate property; licenses, lotteries
   c. Common property; licenses, permits
   d. Common property; laissez-faire government, licenses
   e. None of the above.

48. The fundamental economic problem all societies face is that choice is necessitated by __________________.
   a. democracy
   b. scarcity
   c. capitalism
   d. utilitarianism.
49. Deontological ethics proposes theories of action based on
   a. The premise of an open society featuring diverse values, cultures, and attitudes toward civic virtue.
   b. Duty or moral obligation to select an intrinsically correct action, regardless of the desirability of the outcome anticipated as the consequence of the action.
   c. The desirability of the outcome anticipated as the consequence of the action.
   d. Appropriating the earth's resources to satisfy human wants.

50. A Pigouvian tax is a tax that should be set equal to
   a. the divergence between private and social benefits.
   b. the divergence between private and social costs (or MEC).
   c. the marginal benefit associated with the good or service.
   d. none of the above.

51. While Sanders recognizes that the scientific method of decision making is based on factual information, he suggests it is important that scientists must be sensitive to the reality that many public decisions also consider
   a. myths
   b. values
   c. both a & b
   d. none of the above

52. Sanders discussed the transition to the ___________________ era as a time where objectivity is abandoned and science is just one of several stories that may no longer be supported by the public.
   a. mythical
   b. post-modern
   c. modern
   d. elitist
   e. none of the above
SECTION II. SHORT ANSWER: Fill-in the blank, the best answer or respond as appropriate. “Briefly” means 1 - 4 sentences.

53.  
   a. Identify the “classification of natural resources” discussed in the readings and lecture for cells 1 thru 7.
   b. Provide 2 examples for each category above in cells 8 thru 17.

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54. a. Which general category of ethical system evaluates the ethics of an action based on its intrinsic rightness, rather than on the anticipated outcomes or consequences of the action?

b. If a society has substantial diversity of values and so cannot find common ground upon which to determine the intrinsic rightness of an action, which ethical system provides a method for weighing the beneficial and harmful consequences of an action for each member of society, and then selecting an action based on its net social consequences?

55. It is sometimes asserted that the “economic” element of ecosystem and natural resource management decisions is restricted to the commercially valuable resources that can be extracted, the value of which is (i) determined from market processes and (ii) represents the opportunity cost of preservation and conservation. Briefly but succinctly refute this argument, explaining why the benefits of preservation and conservation, while non-commercial, are still “economic”.

56. Summarize the key points of an answer to Question 1, Chapter 1, p. 16 of the Hackett text, in a paragraph of no more than 5-10 sentences.
57. Suppose that competitive market supply is given by the expression \( P = 20 + 0.2Q \), while market demand is given by the expression \( P=220 - 0.8Q \), where \( P \) is price and \( Q \) is the quantity of the good or service produced and exchanged in the market (both prices are in dollars). In addition, suppose that marginal external cost is $10.00 per unit produced. SHOW YOUR WORK.

a. Compute the competitive market equilibrium \( P \) and \( Q \) in the absence of Pigouvian taxes or other pollution-control regulation of this market. Show your work.

b. Compute the competitive market equilibrium \( P \) and \( Q \) when a Pigouvian tax is imposed on producers. Show your work.

c. Describe precisely how the competitive market equilibrium \( P \) and \( Q \) you described in 55a. above is inefficient. Your answer should include a computation of the amount of implicit price subsidy. Show your work.

d. Sketch a graph to show the original and tax situations.
58. During an in-class team exercise you were asked to select a natural resource/environmental issue that exhibits market failure.

a. Identify one of the 5 problems/issues from that exercise.

b. Define the specific nature of the “problem” and what is causing this to occur. Explain whether it is a public or private problem.

c. Sketch the market failure with marginal benefit & marginal cost curves, & identify what's being measured on each axis, and label all points.

d. Identify on the graph the point that corrects for market failure to approximate optimal management or market equilibrium and briefly discuss how it would work.

e. Briefly note and discuss the key ethical issues related to this issue and its resolution.
59. There will be a few questions from Dr. Smolen’s lecture, such as:

--What is the goal of the Clean Water Act.

--What is the number one water pollutant in Oklahoma?

60. Briefly discuss the concept of “takings” with respect to property rights.

61. Summarize the key points of an answer to Question 1, Chapter 2, p. 35 of Hackett text, in a paragraph of no more than 5-10 sentences.
62. Define natural resource economics, based on Lesson 1 lecture and the readings.

63. Draw graphs appropriately labeled to apply the Pigouvian concept to:
   a. A negative externality. Identify an example of this case.
   b. A positive externality. Identify an example of this case.
64. Briefly discuss the concept of private property rights, including the rights of the owner and the rights of the government.