1. Imagine the price of a Vail lift ticket is $100, and at $100 you choose to ski Vail three times. Value then raises the price of a lift ticket to $140. Consider the following statement about how much you are damaged in $. Which is correct.
   A) There is not enough information to say anything about how much you are damaged (in $)
   B) Your damages are $120 or less.
   C) Your damages are $120
   D) Your damages are $40

   This question came from one of the review questions. So, see the answer there. Simply, max damages are $120, how much you would be damaged if you took no action (continued to ski there 3 times). This would be what you would do if your demand curve for Vail ski days was vertical at 3 trips ($ on the vertical axis)

   If you demand curve is not vertical, you will react by taking skiing Vail less, which reduces your damage beyond its maximum

2. Assume humans but not bears are members of society. Consider a plan to save polar bears from extinction. Economists have correctly estimated each bleeding-heart bear lover's CV for saving the polar bear, and the sum of all of these is positive CV's is $100 million. The only cost of saving polar bears would be a $5 increase in the price of Co Co Puff cereal. Bear lovers could care less about Co Co Puffs or its price, but many other members of society do. At the current price, 150K boxes are consumed. Do we know whether the program to save polar bears is a P.I. or a P.P.I.?
   A) No, we do not know whether it is a P.P.I.
   B) Yes we do, we know it is a P.P.I.

3. According to U.S. law, damages from an environmental injury are
   A) Willingness to accept: what those injured would have to be compensated to agree to not restore the environmental resource to its pre-injury state
   B) Willingness to pay: what those injured would have to be compensated to agree to not restore the environmental resource to its pre-injury state
   C) Willingness to pay: what those injured would pay to restore the resource to its pre-injury state.
   D) Willingness to accept: what those injured would pay to restore the environmental resource to is pre-injury state

4. A referendum contingent-valuation question is a special case of a choice question.
    A) Incorrect
    B) Correct

5. Imagine of society of two individuals (Colin and Sofia) and two goods: operas CDs, O, and BBQ steaks, B. Both are goods for both individuals. Further assume a manna-from-heaven model (no production). Assume we have correctly drawn their UPF. Society is currently operating at a point inside this UPF. At this point, it must be the case that not all of the steaks and CDs are being consumed.
    A) Incorrect
    B) Correct

    This question is from my 2010 notes. If all the steaks are not being consumed, society will be inside the UPF (so, "not all steaks consumed" is sufficient to cause society to be inside the frontier). But it is not necessary: many points inside the frontier would involve total consumption of both goods, but inside because steaks and operas are not efficiently allocated between Colin and Sofia. That is, there are P.I. trades.

    Make sure you understand the distinction between necessary and sufficient.

6. Consider our theory of location-choice, the theory that is the foundation of the hedonic technique. Assume that a small proportion of Boulder's population is deaf (they hear nothing). Assume all deaf people know sign language but most of the hearing do not. (Choose the answer that is both correct and most informative. WB=well-being.)
    A) All of the other answers are correct and seem reasonable.
    B) Deaf people might get a bump in their WB by living, all else constant, where it noisy.
    C) Deaf people might get a bump in their WB by working, all else constant, in a noisy environment.
    D) Deaf people might get a bump in their WB by choosing, all else constant, not to live near the opera.

7. Policy A will ban all tobacco products in the U.S. Previous research has determined that the CV for Policy A varies in the U.S. population from a low of -$100 to a high of $100. You ask a 100 randomly selected Americans if they would pay $20 to invoke Policy A and 20% vote yes. For sure, the average CV is **larger** than:
(Don't forget that if two numbers are negative, the one closer to zero has a larger value.)
(Choose the answer that is both correct and most informative.)
A) -$50
B) 0
C) -$60
D) -$100

So, CV is between -100 and 100. 20% would vote yes to $20. So, upper bound estimate is .8(19.99) + .2 (100)=16+20=$36. And the lower bound estimate is .8(-100)+.2(20)=-80+4=-$76

So, average CV is between -$76 and $36
So average CV is at least -$76
We can't say it is at least -$50, or at least -$60, or at least zero because the lower bound is less that than all three of these numbers.
. the answer is D.
This is an example where the data added information about the upper bound, but not about the lower bound.

8. Imagine a society of two individuals (Colin, the cowboy and Sofia, the New Yorker) and two commodities: operas and barbecued steaks. For Sofia both are goods, but for Colin opera is a good but steaks are a bad (he is a vegan). Further assume a manna-from-heaven model (no production). Assume we have correctly drawn their UPF. The allocation of steaks and opera is efficient. Given all this, it **must be the case** that Sofia is eating all of the steaks.
A) Incorrect
B) Correct

Again, this is a 2010 question. This is a basic efficiency question. If Colin gives a steak to Sofia, Sofia is better off (steaks are a good for Sofia), and Colin is no worse off. So efficiency requires that Sofia is eating all of the steaks. If a commodity is a "good" more is always preferred to less.

9. We are on a path such that in fifty years, average global temperatures will be 5% higher than they are today. You have a WTP to not have temperatures rise. Your one-time WTP for temperatures to rise by (5-x)% rather than 5% is WTP(x)=x +sqrt(x). (Note that sqrt(1)=1, sqrt(2)=1.4, sqrt(3)=1.7, sqrt(4)=2 and sqrt(5)=2.2). Note that your WTP for x=0 is zero.

   You are asked on a referendum CVM question whether you would pay a one-time payment of $3 to have temperatures rise by 3% rather than 5%. How would you vote? (Assume you would vote yes if your WTP for this reduction is greater than $5)
   A) I would vote no
   B) Not enough information is given to determine how I should vote.
   C) I would vote yes

10. In economics all values must be measured in the same units. Often economists use money. But they could denote value in terms of pumpkins or time (how long to would work to get an item). Consider an individual's ranking of bundles (SOW) in terms of the WTP (money) for 5% less global warming (highest to lowest). Then consider that individual's ranking of WTP (time) for that 5% reduction. Choose the statement that is most likely to be correct.
   A) The two rankings could never be the same.
   B) The two rankings will always be the same.
   C) The two ranking will be the same if everyone can convert time into money at the same rate (everyone has the same wage rate.)

11. Which of the following statements is correct is correct and most informative?
   A) Choice questions ask hypothetical questions. CVM questions do not.
   B) Choice questions ask hypothetical questions. CVM questions are choice questions with only two alternatives, one the status quo.
   C) Choice questions ask hypothetical questions. CVM question are a subset of choice questions.
   D) Choice questions ask hypothetical question. CVM question are not choice question.

12. You do a referendum CVM survey for Project A (banning heavy-metal music). God tells you that no one has WTP for Project A that is higher than $40 (only poor young people listen to it). You survey 100 randomly-selected individuals and ask if they would pay $10 to have heavy-metal music banned. 25% say yes. You then survey a different 100 randomly-selected individuals and ask them if they would pay $40 to have it banned, and 5% say yes. (Choose the answer that is both correct and most informative.)
    A) Average WTP is no more than a bit less than $10.
    B) Average WTP is at least zero.
    C) Average WTP is no more than a bit less than $17.50

    You guys knew there would Turnbull questions.
    By assumption WTP is between – infinity and $40
    5% have a WTP of $40
    25% have a WTP of $10 or more, so 20% have a WTP between $10 and $39.99

    The lower-bound estimate of average WTP is – infinity.
    The upper bound is, approximately, .75(10)+.25(40)=7.50+10=$17.50.
    That is, the average WTP cannot be more than a bit less than $17.50
    The other answers are correct statements but provide less information.

13. In the context of valuing the preservation of+ an environment amenity using the CVM, *embedding* is (Choose the answer that is both correct and most informative.)
    A) Valuing a smaller environment amenity, an amenity that is a subset of the asked-about amenity.
    B) Valuing a broader environmental amenity, an amenity for which the asked-about amenity is only one component.
    C) You are fixed/embedded in your view of the environmental amenity in question, so answer the CVM question based on your view rather than how the amenity is described in the survey.

    This question was asked and answered last Thursday in class.

14. Assume the **only** difference between the original state and the new state is that your income is $100 higher in the new state; that is $y^1=y^0+100$. Is the following statement correct? Your ev for the change is $100 but your cv for the change is not necessarily $100. (Choose the answer that is both correct and most informative.)
    A) The first part of the statement is correct. The second part is not correct.
    B) The statement is incorrect because a correct statement would be "Your cv for the change is $100 but your ev for the change is not necessarily $100.
    C) The statement is incorrect
    D) The statement is correct in its entirety

If the only change from the original state is you have more income in the new state, then

CV=EV=that income increases. So, in this case, CV=EV=100

15. For a market commodity _____ is exogenous and quantity is _____. For a nonmarket commodity _____ is exogenous and _____ is endogenous. (choose the best fill-ins)
    A) price, endogenous, price, value
    B) price, endogenous, quantity, price
    C) price, exogenous, price, quantity
    D) price, endogenous, quantity, value

16. (new) Is global warming (the heating of the planet) congestible?
    A) No
    B) Yes

17. Stated-preference data is necessary if one must estimate the total damages resulting from an environmental injury (Correct, one cannot estimate non-use damages with just revealed-preference data. Why? Because non-use values are not reflected in behavior. If they were, they would be use damages.)
    A) Incorrect
    B) Correct

18. Consider two individuals who have identical preferences, and who both face the same cost per/mile of travel. Both individuals ski at Snerd Valley and both only take day trips. Neither lives at Snerd Valley and both face the same lift-ticket price. Is the following assertion correct: "The individual who lives further away will necessarily have a lower wtp for the existence of Snerd Valley than does the individual who lives closer."
    A) The statement is incorrect
    B) The statement is correct.

19. Assume you prefer the new state to the old state. Your cv is the amount of money that would have to be subtracted from your income in the original state to make you indifferent between the original state and the new state.
    A) Incorrect
    B) Correct

20. I have a ton of old newspapers in my home office. I like them there; Sally, my wife, does not. The current situation is efficient because? Choose the best possible answer.
    A) Sally's WTP for their removal is less than my WTA their removal.
    B) Sally's WTP for their removal is more than my WTA their removal.
    C) Sally's WTP for their removal is more than my WTP to keep them around.
    D) It is not right for me to clutter up our home with yellowing newspapers.

21. Consider a situation where a **potential** seller's WTA (willingness-to-accept) the loss of the good is less than a **potential** buyer's WTP (willingness-to-pay) for the good. This situation can occur at the market equilibrium price. (if I ask this again, I might drop the word "price")
    A) Incorrect
    B) Correct

    If a potential seller has a WTA the loss of an item that is less than a potential buyer's WTP for the item, the current situation is not an equilibrium.

    Both parties want to change things (the potential seller wants to sell, and the potential buyer want to buy), so before the sale occurs the situation is not an equilibrium.

    An equilibrium is where no one wants to change their behavior, given their constraints, which include what everyone else is doing.

    At market equilibrium WTA the loss by potential sellers is always greater than or equal to WTP on the part of potential buyers.

Sabrina and Travis point out the following: At the market equilibrium (price and quantity) there are people who have purchased the item. And these people often have a WTP greater than the market price (I bought the skis for $500, but would have paid $800, so experience a CS of $300). And the seller who sold them to me at $500, might have had a WTA their loss of less than $500. So, for completed transactions WTP is often greater than WTA.

So, I hopefully did not say or imply that at the market equilibrium WTA cannot be less than WTP.

What there can't be at equilibrium are be unconsummated exchanges of the item where WTA is less than WTP.
That is why I used the adjective "potential".

22. America is on the verge of electing a Democrat (Harvey W.) our next President. But you are gun-ho to elect Trump to a second term. Your willingness-to-accept Harvey as President is
    A) an equivalent variation (the answer coded as correct)
    B) It is neither a compensating variation nor an equivalent variation.
    C) a compensating variation
    D) It depends, it: it could be either a compensating variation or an equivalent variation.

    You prefer that Trump gets a second term.

    What is the original state and what is the proposed state?

    So, I assumed the default (original state) is Harvey as president. He is on the "verge".

    If the status quo is Harvey becomes President, you are worse of in the status quo state than in the new proposed (Trump reelected).
    In this case, the ev>0 and how much would have to be added to your income in the status quo Harvey state to make you indifferent between the alternative Trump state and the Harvey state with the income bump. This would be your **wta** to accept the status quo state.

    If the status quo is Trump is re-elected, then the new state is Harvey replaces Trump. In this interpretation, you prefer the initial state. In this case, ev<0 and is the amount that would have to be subtracted from you income in the Trump world to make you indifferent between the Harvey world and the Trump world with the income reduction. This would be your **wtp** (**not** your wta) to not end up with Harvey. Your cv<0 is, in absolute terms, you **wta** Harvey. How much you would have to be paid to live with Harvey.

    So, what is the correct answer. It is not B: wta has to be either a cv or an ev.

    I would say A, but that was based on my (reasonable?) interpretation that Harvey president is the status quo.

    I will make an adjustment for this question.

23. The following is possible? The use damages associated with the banning of an activity at a site (e.g. recreational fishing) could be greater than the total damages associated with the banning.
    A) No, this is not possible.
    B) Yes, this is possible

       Total value equals use value plus not-use value, and, for a specific policy, either can be positive or negative.
       So, consider the possibilities:
       Both positive
       Both negative
       Use negative, non-use positive
       Use positive, non-use negative.

       Running with the example, banning rec fishing at a site.
       Anglers are damaged (negative use value)
       But what about non-use value?
       What if non-anglers prefer that the fish are not being killed and tortured? In which case, non-use values are positive.

       And, total damages are less than use damages

       Three other examples.
       Hikers and bikers in Boulder parks
       Baby sea hunting.
       Banning recreators from a sensitive wilderness area.

24. Which of the following statement are correct"
    A) If I know your preferences, I know the magnitude of WB (well-being) you would get from every conceivable bundle (SOW)
    B) Your preferences are determined by the utility could get from each conceivable bundle.
    C) Your preferences are simply your ranking of bundles (states-of-the-world) such that if you had to choose between two feasible bundles, you would choose the one that was ranked higher.

25. Recently in class we have been taking about abatement (the ability to reduce pollution holding constant the output that produced that pollution). Early in the term we discussed materials balance which follows from the fact that matter is neither created nor destroyed (what goes in must come out). Can both of these processes coexist, or does materials balance imply that abatement is not possible.
    A) No, materials balance precludes abatement, so there is an inconsistency in the lecture notes.
    B) They can coexist

26. Consider two individuals who have identical preferences, identical incomes and who face all the same prices. Assume they both face the same cost per/mile of travel. Both individuals ski at Snerd Valley and both only take day trips. Neither lives at Snerd Valley and both face the same lift-ticket price. Is the following assertion correct: "The individual who lives further away will necessarily have a lower wtp for the existence of Snerd Valley than does the individual who lives closer."
    A) Incorrect
    B) Correct

27. You do a referendum CVM survey for Project A (banning heavy-metal music). God tells you that no one has a WTP for Project A that is higher than $40 (only poor young people listen to HM). You survey 100 randomly-selected individuals and ask if they would pay $20 to have heavy-metal music banned. 25% say yes. You then survey a different 100 randomly-selected individuals and ask them if they would pay $40 to have it banned, and 5% say yes. (Choose the answer that is both correct and most informative.)
    A) Average WTP is not more than $30
    B) Average WTP is not more than $32 coded as correct
    C) Average WTP is at least zero.
    D) Average WTP is not more than a bit less than $40

    I don't where my mind was, but I somehow got the upper bound to be $31. If that were correct, the best answer would be B.

    However, it seems that correct calculation of the upper bound is .75(20)+.25(40)=15+10=25, in which case the best answer is A.

    So, for this flawed question, I will add 1 correct answer to your total.

28. (new) The non-use values produced by a good are often non-congestible
    A) Incorrect
    B) Correct

29. Assume everyone prefers cleaner air. Imagine that the Snerd Corporation wants to start producing gubers, and their production of gubers will decrease air quality by some specific amount. What would the Snerd Corporation know if they only knew the sum of the EV's for this decrease in air quality?
    A) They would know how much people would have to be compensated to accept this reduction in air quality.
    B) They would know how much people would pay to stop this reduction in air quality.

30. For the purpose of this question, assume trees only have value in terms of producing wood and, while standing, protecting watersheds against erosion. Rocky Mountain Forest is a government-owned forest in which private citizens were allowed, in the past, to harvest as much timber as they wanted free of charge. State in economic terms why this is problematic from society's point of view.
    A) The marginal social cost of harvesting a tree is less than a private logger's individual marginal cost. If this were the case, private loggers would cut too few trees from society's perspective.
    B) The marginal social cost of harvesting a tree is greater than a private logger's individual marginal cost. In this case, private loggers would cut too many trees from society perspective.
    C) The marginal social cost of harvesting a tree is unknown so it may or may not be problematic.
    D) The marginal social cost of harvesting a tree is equal to private logger's individual marginal cost. In this case, private loggers would cut the efficient amount from society's perspective.

    I was assuming that the marginal social cost of harvesting is greater than the private cost (more erosion, bad for wildlife, bad for recreators) so made B the correct answer.

    But earlier today I was watching the CA fires on TV. So, maybe the marginal private cost is greater than the marginal social cost. (cutting trees and removing them reduces fire danger)

    So, I need to make an adjustment.

31. Which of the follow conditions would make it difficult to use a hedonic-valuation to value, for the residents of Boulder, a site-specific amenity such as a North Boulder Park.
    A) None of the other answers are correct
    B) Two of the other answers are correct.
    C) If many site-specific amenities are individual specific, in that their location affects, only one or a few people.
    D) If some residents like to live near (far) from their friends.

    C and D are both reasons, so the answer is B.

32. Assume you prefer the new state to the old state. Your ev is the amount of money that would have to be added to your income in the old state to make you indifferent between the original state and the new state.
    A) Incorrect
    B) Correct

    Almost everyone got 32 and 34 correct. But I was asked about these questions during the exam.

    The phrase starting with "Your ev …" is the **definition** of the ev, making the answer correct. If you prefer the new state to the old, your ev is positive and is the amount that would have to be added to your income in the old state.

    What you have to conceptually separate is the ev number can be positive or negative, but the ev is defined as what is **added** to income in the initial state to make you indifferent between …

    See question 34, that has an incorrect definition of the ev.

    Imagine that 32 did not include the first phrase. I think more people would have gotten it correct. I thought the first phrase would make the question easier, but I think it confused a few of you.

    Consider another question. The same as 32 but starting with "Assume you prefer the old state to the new state." In which case, while the definition of the ev is correct, ev is a negative number (a negative number is added to your income)

33. Imagine Bob in a world of only two commodities: a good (more is always preferred to less) and pollution (a bad: less is always preferred to more). Which statement about Bob's indifference curves is both correct and most informative? (pollution on the vertical axis, the good on the horizontal axis)
    A) They are upward sloping and more preferred bundles are to the south-east
    B) They are downward sloping and more preferred bundles are to the north-east
    C) They are downward sloping and more preferred bundles are to the south-west
    D) Each indifference curve will have some positively-sloped sections and some negatively-sloped sections.
    E) They are upward sloping and more preferred bundles are to the north-west

34. Assume you prefer the new state to the old state. Your ev is the amount of money that would have to be subtracted from your income in the original state to make you indifferent between the original state and the new state.
    A) The last statement is incorrect
    B) The last statement is correct

       The above is not the definition of the ev. The correct definition is y+ev, not y-ev. Since an improvement is specified, ev is positive. See question 32 that has the correct definition of ev.

Answer Key

1. B
2. B
3. C
4. B
5. A
6. A
7. D
8. B
9. C
10. C
11. B
12. C
13. B
14. A
15. D
16. A
17. B
18. A
19. A
20. A
21. A
22. A
23. B
24. C
25. B
26. B
27. B should be A
28. B
29. B
30. B
31. B
32. B
33. A
34. A