

ACT 2176 CPRE

English

1. Answer: C

Concept: E102 - Comma Rules

When introducing people with their occupation (or a similar description), you can determine whether you need a comma by figuring out whether the *name* or the *occupation* is functioning as the subject of the sentence. In this sentence, the subject is “Norman Woodland and Bernard Silver,” who are being *described* as “graduate students.” If the sentence was written differently, it *could* describe a couple of graduate students by specifying their names, which would warrant comma use (ex: “two graduate students, Norman and Bernard, took on...”). As written in the text though, you do *not* need a comma separating the names from the occupation describing them.

2. Answer: J

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

When one choice is to delete something, always check if it makes sense to do so: simplicity is king. In this sentence, none of the connectors make sense: the first clause is dependent on the second, and it makes the most sense to have them simply connected by a comma. There is no need here for a logical function like “however” or “consequently,” and it is incorrect to include one.

3. Answer: A

Concept: E204 - Redundancy and Clarity

None of the answer choices provide additional information or clarity. In fact, they only make things more confusing by adding unnecessary complexity. The simplest answer is often correct, and that is the case here: “specific distances from each other” is perfectly clear.

4. Answer: F

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

The tricky part of this question is that the sentence just sounds bad, so your instinct is probably to remove it. But if you look at the context (specifically the sentences immediately on either side), you’ll see that this sentence *cannot* be deleted. The following sentence references “the remaining three lines,” which means the first line *must* be established before that sentence can make sense.

5. Answer: C

Concept: E202 - Word Choice: Correct Word

Use context clues to figure out the correct answer. Often, it will be a simple word that you know hidden with less common words to throw you off. The sentence here describes the number of combinations one could make with the early barcoding. You don't need to know what "susceptible" means to realize that the correct answer is "possible," because the sentence is always set up to make sense with *exactly* one answer. Even if you only know one of the four words, if that one makes sense in the sentence you know the answer.

6. Answer: J

Concept: E101 - Verbs: Agreement/Tense

This question asks you to match the subject with the correct form of the verb. Because the underlined verb is the *active verb* of the sentence, it needs to be conjugated: it cannot be in the infinitive form "to make," as in H. The form "which make" does not form an action, but sets up a modification of the subject (ex. "lines which make differences"). Between F and J, "making" and "make," the correct choice is J: make, because it is conjugated to be *plural*, which matches the plural subject "lines."

7. Answer: B

Concept: E202 - Word Choice: Correct Word

Right away, we can rule out option D because it is unclear and unscientific. What is left is to determine which word best names the machine described: "concoction," "contraption," or "substance." C is the next clear elimination, as a "substance" is usually something without a distinct form, like a liquid or paste. Between "concoction" and "contraption," you can hopefully recognize "contraption" as the more appropriate vocab word for a machine; a "concoction" is typically some sort of liquid mixture.

8. Answer: G

Concept: E205 - Transition Words/Phrases

We can tell from the options that the underlined part of the sentence is a transition, so we should look to the sentence before it for context. That sentence is about how costly the machinery was, and the next sentence (after the underline) is about how progress stalled until the 70's. It's important to note the parenthetical, which explains that in the 70's the technology became more compact and *less expensive*. The connection between these sentences is a logical progression: because it was expensive, progress stalled until it became affordable. Only one answer choice shows that kind of cause-effect relationship: G, "as a result."

9. Answer: A

Concept: E105 - Pronouns: Agreement/Case

To determine which pronoun is correct, look at the *antecedent* (noun being referred to). Usually, that will be the subject of the sentence, but not always. In this sentence, the antecedent is “the light.” Because that’s singular, we can rule out “them” and “ones,” which are plural. The tricky bit is that, although “the light” is singular, we can’t refer to it as “one” because you can’t count it. The best option is to leave “it.”

10. Answer: J

Concept: E205 - Transition Words/Phrases

The question asks for the best option to “lead into the new subject of the paragraph.” In other words, the best *transition*. To pick a transition, you need to know what you’re leading into, so read the rest of the paragraph. It goes over modern barcode technology, so we need a transition to take us from the *old* technology to the *new*, a transition of *time*. Because the last paragraph was about 70’s laser technology, it doesn’t make sense to go back to the 40’s and 50’s; F and G are out. H does mention the right time frame, but it fails to bring it up to the present, so it’s not a proper transition. The best choice is J, which says barcodes “have advanced” in order to show the reader we have skipped ahead in time, effectively leading from the descriptions of old technology to the new.

11. Answer: B

Concept: E110 - Recognizing Clauses

To make this sentence simpler, let’s just ignore the opening clause “today.” Because it’s dependent, we know the next part of the sentence will be an independent clause. If we read it as-written, it is *not* an independent clause: “being that there are” is trying to make another dependent clause, a sort of modifier. C and D also fail to make independent clauses. Only B makes an independent clause, by adding “there are” to establish a subject and predicate.

12. Answer: J

Concept: E206 - Modification: Dangling Modifiers

This sentence has an issue with clarity. Because verbs in the “-ing” ending can be used as modifiers *as well as* actions, we create some ambiguous situations. In the sentence “In one study, for instance, tiny bar codes were placed on bees tracking their activities,” you can’t tell for certain how “tracking” is being used. We know logically that the bar codes are tracking the bees, but the grammar could also mean the bar codes were placed on *bees which are tracking*. This ambiguity is a problem. G has the same problem, just with “trying to track.” H is an improvement, but could actually still mean the *bees were used to track*. The only answer which avoids this confusion is J, because “to”

cannot implicate the bees in any way.

13. Answer: C

Concept: E101 - Verbs: Agreement/Tense

Because the first clause has no subject, we know it is dependent on the second clause to give the correct subject. That means the second clause must be independent, and must have a subject which matches up with “shaping the way we gather, track, and share information.” Options A and D incorrectly suggest “we” should be the subject, even though “we” aren’t the ones “shaping.” B is especially convoluted, trying to make a subject out of the very act of exceeding expectations. The only choice which correctly makes “bar codes” the subject is C.

14. Answer: F

Concept: E209 - Moving Paragraphs

First, look at the paragraph in question. It is describing how Woodland and Silver made their first prototype. G does not make sense, because nothing should go before the introductory paragraph. J also doesn’t make sense, because it shouldn’t go after the conclusion. The only decision here is whether this paragraph should come before or after the description of the first bar codes in paragraph 2. While it is possible to argue it should come before paragraph 2, you also need to check how it will impact what follows. If you read paragraph 4 (which is describing modern scanners) you will find that it makes much more sense to transition from 3 to 4. That means the best answer is to leave paragraph 3 where it is.

15. Answer: C

Concept: E210 - Writer’s Goal

First, before even reading the answer choices, think about what the “main purpose” of this essay is. It informs the reader about the creation and evolution of the bar code. Does it go into how that development “changed business practices?” Even though we know bar codes *did* do that, it isn’t the point of this essay. Our answer will almost definitely be a “no,” but we can still check if the “yes” options have any good evidence. Option A suggests the text is an “overview of current bar code technology,” which is definitely not true with all the focus on early bar codes and their development. B does suggest how bar codes help businesses, but the essay doesn’t actually explain this much at all. Between C and D, which we already have reason to think will have the right answer, the best choice is C: the essay’s focus is on the development of bar codes, *not* on their commercial implementation.

16. Answer: F

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

This question is basically asking us to join two clauses. To do so, we need to identify whether they are dependent or independent. The first, which contains the woman's dialogue, is an independent clause: it has subject (the woman) and verb (said). As-written, the next clause is dependent: it borrows its subject (the woman) from the last clause. To connect a dependent and independent clause, all you need is a comma. By creating a new subject with a pronoun (she), the second clause would become independent and then need a conjunction, like "and." None of the answer choices do both; they only add a conjunction *or* a subject, so they all fail. We must leave the sentence as-is, with a dependent and independent clause joined by a comma.

17. Answer: D

Concept: E204 - Redundancy and Clarity

When you read the answer choices, you should notice the redundancy in option C. That's a clue that you need to be looking for other redundant options, so read the sentences before and after the underline so you know what to look for. In the sentence prior, it already said the woman whispered and pointed up to the ceiling. There's no reason to say so again, so the best option is D.

18. Answer: J

Concept: E110 - Recognizing Clauses

Transition words like "while," "although," and "since" do more than just move one idea into another. In this sentence, they also change the grammar of the clause. Because this sentence has only one clause, it *must* be independent. These transition words, though, make the clause dependent by trying to join them to another independent clause (ex: *while* something happened, something else happened). Because there is no second clause to attach, none of these transitions work, and the best answer is to forego them altogether.

19. Answer: C

Concept: E112 - Prepositions

To answer this question, you need some basic knowledge of prepositions. There isn't a trick to it really, you just need to read carefully and identify which preposition fits with "travelling ___ canoe." Try inserting each preposition to see what sounds right. Because there's no article "a" before "canoe," it doesn't sound right to use "in" or "on" (we would say "in a canoe"). There is a similar problem using "with." The correct option is "by," because it is the standard preposition used to denote types of transportation in English (travelling *by* plane, or *by* train).

20. Answer: J

Concept: E204 - Redundancy and Clarity

This E204 question isn't about redundancy, but clarity. There is also a bit of E203 for tone, because words like "downright" and "pretty" don't sound right here. The real issue is that all the author is trying to say is "it would be dark." The incredibly long sentence in F is far too complex. G and H aren't as long, but neither is as straightforward as J.

21. Answer: B

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

To determine what the best thing to add is, make sure you keep in mind what the question is asking for. Specifically, it wants the correct answer to highlight *the narrator's reaction* to the woman's comment: that she found it peculiar. Option A doesn't sound at all like the narrator found it peculiar, nor does option D. Between B and C, B focuses more on the narrator's response: "surprised." C just adds a detail, and one which does not add anything useful to the text.

22. Answer: J

Concept: E110 - Recognizing Clauses

Don't let the long sentence and triple commas confuse you. To determine the correct grammar, we only need to look at the level of the clause; we can ignore the whole section "here, I guessed, to research the organism." What is the active verb of the clause? *Not* the underlined part, but "indicated." That means "pinned" is part of the subject, describing the badge. "A badge pinned to her shirt" is the subject, and the predicate is "indicated she was a biochemist."

23. Answer: D

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

Even if you aren't sure how the word "via" is typically used, you can figure out the answer to this question. If we used punctuation to start a new clause here, it would be "via a chemical reaction." Because this is not an independent clause (which must have both subject and predicate) we can rule out answer choices which can only join independent clauses. Options A, B, and C are *all* ways of joining independent clauses, so none of them are possible choices. D must be the answer.

24. Answer: J

Concept: E105 - Pronouns: Agreement/Case

Because it isn't in the underlined portion, we know we can't change the pronoun "its." That means whatever answer we choose needs to match "its" to be correct. Be careful: "its" is singular! It is the possessive form of "it." That means the antecedent (corresponding noun) needs to be singular. F and G are pretty clearly plural, since they refer to "all" glowworms. H and J both use "each," which can be used to make a singular subject by collectively referring to individual members of a group. So which is singular,

“each of the glowworms” or “each glowworm?” The answer is J: each glowworm.

25. Answer: B

Concept: E200 - Reading/Rhetoric

In this sentence, three actions are happening in a sequence. Your job is to make sure that sequence is in the correct, logical order. The three steps, as written, are insects being trapped, being reeled in, and being lured by the light. That order doesn't make sense. What must come first? Before they can be reeled in, they must be trapped. Before they can be trapped, they must be lured. The right answer will have this order: lure, trap, reel. Only option B shows this logical order of events.

26. Answer: H

Concept: E205 - Transition Words/Phrases

Even though it comes in the middle of the sentence, the underlined portion here is still a transition: it could be easily arranged to come at the start of the sentence. The function is still transitional: leading from the last idea into the next. So what was the last idea? “The light responds to environmental factors.” The next idea is “the sound of splashing water might signal that prey is nearby, causing them to brighten.” What relationship do these ideas have? The splashing water is an *example* of how the light responds to environmental factors, so the sensible transition is “for example.”

27. Answer: B

Concept: E204 - Redundancy and Clarity

How do we make this sentence clear? We *know* what is supposed to be brightening: bioluminescence. But the pronoun “them” is unclear: there is no plural antecedent which obviously corresponds to it. “These” has the same problem. We can't just delete the pronoun, or else the clause no longer has a subject. The best choice is to clearly state what is brightening: the light.

28. Answer: H

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

Read the question! It specifies that the correct answer will do two things: conclude this paragraph, and refer back to the beginning of the essay. Any answer which does not do *both* cannot be correct. Without even needing to look back, we can rule out any answer which does not conclude this paragraph well. The paragraph explains the method by which glowworms catch their prey. G is the least relevant to the paragraph, so it's out. J is another fact about their glow, but it doesn't do anything to conclude the paragraph. F and H both refer back to earlier details (the comparison to the night sky, and the camera flash), but one of those is much more reasonably called “the beginning.” The night sky comparison comes a few paragraphs in, but the camera begins the essay. Answer H

best concludes this paragraph and ties it back to the essay's start, filling both of the roles the question specified.

29. Answer: A

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

Because there is no glaringly obvious logical reason that this substitution shouldn't be made, the correct answer will be determined by which option has the best supporting evidence. The support in B is untrue; there is no evidence here to suggest the light dimming, nor was there an indication that the light had dimmed. C doesn't make sense either: neither the original nor replacement phrase says anything about the narrator leaving. D suggests some breach of suspense, but there has not been any sort of suspense regarding this dragonfly, which was only just mentioned for the first time. The best choice is A: this replacement is *more specific* (towards the light, not just in the cave) and that specificity *supports the author's claim* (that they knew its fate).

30. Answer: H

Concept: E103 - Separating Independent Clauses: Period, Semicolon, Comma and FANBOYS

Break up the clauses here and determine whether they are dependent or independent. "I knew its fate" is independent, with both subject and predicate. "It would be ensnared" is also independent. "Just as I had been by the brilliance of these luminescent glowworms" is dependent. We need two junctions to join these three clauses: independent + independent + dependent. The second is already provided, as you only need a comma to join a dependent clause to an independent clause. We need to pick the answer choice which will combine the two independent clauses at the start. J offers nothing, so it's clearly out. F has only a comma, which is not enough for two independent clauses (there would also need to be a conjunction). G has a conjunction, but it isn't with a comma; semicolons should not have a conjunction to join two independent clauses. The only correct choice is H, the colon.

31. Answer: A

Concept: E102 - Comma Rules

Let's evaluate whether you need a comma here. Are we separating clauses? No. "The basket next to me" is all part of the subject of this clause. This sentence has a compound predicate: one subject ("I") does two things ("places" and "crouches"). The comma placement in options B and C simply doesn't make sense, but what about D? Could we create a new clause out of the second half of our predicate? If we did, it would be dependent (there is still only one subject at the beginning). D offers a comma *and* conjunction, however, which is only a means for combining two independent clauses. As such, it can't be correct, so A is the answer.

32. Answer: G

Concept: E204 - Redundancy and Clarity

The most important aspect to consider in this sentence is clarity. We know the speaker must be crouching under the bush, because that's the only sensible reading. As-written, we can't be sure that "this" isn't referring to the basket. H and J have the same problem: the antecedent (what the pronoun refers to) is ambiguous. The only way around that is to name the object instead of using a pronoun, as in option G.

33. Answer: A

Concept: E211 - Parallel Structure

The question asks for the answer which best "maintains the sentence pattern." Look at the sentence; what's the pattern? After the semicolon, we have three clauses in a row with a similar structure: (*noun*) *will* (*verb*), (*noun*) *will* (*verb*), and (*longer noun phrase*) *will* (*longer verb phrase*). The second part of the pattern is what we can change, but will any of the options fit better? B changes the subject to "I" and makes the "buds" into a direct object, which is further away from the pattern structure. C adds a nonessential clause and muddles the tense with "which have sprouted," straying further still from the pattern. D is a bit closer to the pattern, but must be wrong because it is redundant (it says both "then" and "after that"). The best choice is to leave this as-is.

34. Answer: J

Concept: E102 - Comma Rules

Looking at the question and answer choices, we clearly have a comma question. So before we get flustered, slow down and evaluate the grammar of the sentence, paying close attention to clauses. The first part is an independent clause: "Mine are *antique* roses," which has both subject and predicate. The second clause (ignoring commas for now) is "old or antique varieties which have existed in gardens worldwide for centuries." This is *not* an independent clause; because of the reflexive pronoun "which," this whole phrase is a predicate which refers to the subject from the first clause. To combine an independent and dependent clause, all you should have is one comma. That means the answer is either H or J. Because "old" is part of the second clause, the comma should come after "roses," as in answer J.

35. Answer: A

Concept: E102 - Comma Rules

Where should the comma(s) go in this sentence, if at all? Let's look at the structure. The main independent clause of the sentence is "antique rose colors tend to be (adjective)." The first part of the sentence is simply modifying this phrase, so there should be a comma between them. That accounts for 1 comma exactly. B has an extra comma setting off "color" for no reason, and D has no commas at all. A and C have the correct

number of commas, but which is in the right place? Well, if you look at how we broke up the sentence, the comma should come after “colors” to correctly mark the two parts of the sentence.

36. Answer: H

Concept: E202 - Word Choice: Correct Word

To determine the best adjective, think about what is being described. Not just the roses, but the *color* of the roses. Does it make sense for colors to be “silenced?” Not really. “Lower” and “reduced” also don’t make much sense because they seem to imply there is some measure of color here with a numerical value that can be higher or lower, increased or reduced. Although “muted” is technically a synonym of “silenced,” in English it is common to describe a visual aspect like color as “muted.”

37. Answer: D

Concept: E112 - Prepositions

Choosing the correct preposition can be tricky. Often, the only way to know is to be familiar with the language. Your best bet is reading the sentence a few times and substituting each choice to see which makes sense. You can still try and use grammar to eliminate some options. For example, with the verb “make,” “into” requires two nouns: *make (A) into (B)*. So that doesn’t fit here. For the other three choices, though, you will mostly just need to know that “make for” is a common structure in English which roughly means “create.”

38. Answer: G

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

The key word in this question is “contrast.” If what we want is to “contrast” with the first description, we need something that sounds like the *opposite*. So which answer choice is the best opposite of “long stems” and “scraggly looking?” The choice is clear: G, *lush and shapely*.

39. Answer: C

Concept: E205 - Transition Words/Phrases

To choose the best topic sentence for this paragraph, you need to look at the rest of the paragraph and see what’s being introduced. Looking ahead, it goes on to explain why antique roses are easier to grow and maintain than tea roses. Although the given sentence is one potential reason for that, it doesn’t introduce the overall idea. B may be true, but it is irrelevant; the same goes for D. Option C best introduces the ideas in this paragraph, and does so in a smooth transition from the last.

40. Answer: F

Concept: E106 - Apostrophes: Possessive, Plural, Contractions

This question has two parts. The first is understanding that the grammar of the sentence eliminates G and H because of the final object, *antiques*, making it redundant to include a form of “they’re.” One could say “they are also easier to grow,” but not “they are also easier to grow antiques.” The second part of the question is just making sure you choose the right form of “it’s.” You need the form which means “it is,” not the possessive of “it.” The correct choice is “it’s,” where you can imagine the apostrophe stands in for the missing space and letter.

41. Answer: C

Concept: E101 - Verbs: Agreement/Tense

Choosing the right verb here can be tricky, so make it easier by just looking at this clause from within the sentence. “Cultivating hybrid-tea roses ____ a process of grafting two species of rose together.” Because the sentence is describing a general activity, we need a singular, present-tense verb: *involves*. You can’t include “which,” because it changes the part of speech of the verb so that it is no longer active, and creates a fragment.

42. Answer: J

Concept: E110 - Recognizing Clauses

For now, let’s ignore the final underlined part of the sentence. There are two parts to the rest of it, and you *need* to evaluate both to find the correct answer. The parts are from the beginning to “counterparts,” and then “antiques” to “hands.” Because the first part is what we can change, we should start with the second so we can adjust the first to fit with what we can’t change. “Antiques can reportedly survive without any care from human hands” is an independent clause. That means, depending on how it is connected to the first part, we will know if the beginning needs to be dependent or independent. They are connected with a comma and no conjunction, which means the first part *cannot* be an independent clause; only a dependent clause or modifier. F and H both create independent clauses, because “they require” and “antiques require” have both subject and predicate. Between G and J, we can determine the answer is J because G results in a redundant use of “antiques” in the second part of the sentence.

43. Answer: B

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

Read the question! One of these details will clearly relate to the idea of “the antique rose’s ability to survive without human care.” Option A is useless, offering nothing of value to the sentence. C is actively contrary to the point, because we want to see that the roses *don’t* need gardeners. D may be true, but it is irrelevant. The best choice is B,

which showcases the detail specified in the question.

44. Answer: G

Concept: E208 - Moving Sentences

Think logically about the order of events being described. They are: digging holes and burying clippings; taking clippings; and waiting for the clippings to grow. Before the author can bury the clippings, they must take them. Before they can grow, they must be buried. The only logical order of events is 2-1-3: taking the clippings, then burying them, then waiting for them to grow.

45. Answer: C

Concept: E210 - Writer's Goal

Think about the question. Is the *primary purpose* describing the process of planting a rose? It is described in the essay, yes, but it is *not* the primary purpose. The essay spends far more time on explaining the difference between two kinds of roses, and only briefly describes the planting process.

46. Answer: J

Concept: E110 - Recognizing Clauses

The answer to this question can be deduced by figuring out the structure of the clauses. The first part of the sentence is an independent clause, so if the second part is attached with only a comma, it must be dependent. Options F, G, and H all try to create an independent clause by adding a subject. By choosing D, you allow the second clause to simply modify the first, and the comma correctly joins the two parts.

47. Answer: A

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

The important part of these answer choices is *not* whether to use dashes or commas; they both function the same way when offsetting a nonessential clause on the ACT. You just need to make sure there are two matching pieces of punctuation, and that they're in the right place. Whether that's two commas or two dashes, they must be on either end of the whole phrase "the largest Indian art festival in the nation." The only option which satisfies this is A.

48. Answer: G

Concept: E101 - Verbs: Agreement/Tense

This sentence is missing an essential verb component. It starts with a subject ("The creator of the piece,"), adds a nonessential phrase introducing him ("thirty-three-year-old... from Princeton, Maine,"), then adds a complete independent

clause with a new subject (“the basket sold at auction for \$16,000”). For this sentence to make sense, we need an action for the first subject, “the creator.” Only one option adds a verb: G, which explains that he “*looked on* as his basket sold at auction for \$16,000.”

49. Answer: A

Concept: E102 - Comma Rules

This sentence has no fewer than *seven* commas. Let’s tackle them one at a time. The sentence starts with an independent clause and adds a nonessential phrase to give some detail: “He primarily weaves a classic material, wood from the brown ash tree,” There needs to be a comma on each side of the nonessential phrase, which we see. That’s two commas accounted for. At the end of the sentence, the string of verbs “he cuts, pounds, dries, and dyes the wood” needs to have those three commas. That only leaves two commas for us to look at. The key is thinking about what grammatical form we have with “unlike most contemporary basketmakers.” It isn’t part of the subject of the clause (“he”) or the predicate (“cuts... the wood himself.”). It’s another nonessential detail like “wood from the brown ash tree,” which means it needs to have a comma on each side. So where does “but” fit in? Well, it isn’t part of the extra detail; it’s a *conjunction*. That means it needs to be next to the comma which marks the end of the first independent clause, but outside the commas which mark this nonessential information. That results in the unusual looking scenario we have here, where “but” is between two commas. It might look odd, but, as a matter of fact, it’s correct. The answer is A.

50. Answer: H

Concept: E110 - Recognizing Clauses

Because we have a period marking a new sentence here, we need to establish a new subject for the action “creating.” That could be a name or nominative pronoun, but it can’t be absent from the sentence. Only one option adds a new subject: H, which restates that it is “Frey” who “creates.”

51. Answer: C

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

Read the question closely. It is asking, “*if* this was deleted, what would be lost?” In other words, “what does this add?” Evaluate each answer: option A suggests there is something here which indicates his baskets are “nearly identical to traditional pieces,” which may be true, but is not indicated here; option B is clearly incorrect, as there is no mention of the physical characteristics of original baskets; D also makes an unsubstantiated claim, that the baskets are used today. Only C remains true to what is actually in the underlined phrase: a detail that connects Frey’s basketry work to long-standing Passamaquoddy traditions.

52. Answer: H

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

The question is looking for the “clearest and most specific” answer. “Certain sections” and “areas” are not as specific as “interiors and bottoms.” Between the two options that specify the area, H is more specific with the description “intricately woven” instead of the vague “characteristic.”

53. Answer: D

Concept: E207 - Modification: Moving Modifiers

If “porcupine quill” is being used as a modifier, it should come immediately before the noun it is modifying. Because the question specifies that it’s the *art* which is porcupine quill, not the lid, we need to move the modifier to right before the word “art.” In other words, right after the word “with.”

54. Answer: J

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

In order for any of these longer options to be worth including, they need to add something clear and relevant to the sentence. Instead, F, G, and H just tack on extra words which say nothing worthwhile. They also do not fit the established tone. The best choice is just to end on “bark” with option J.

55. Answer: A

Concept: E101 - Verbs: Agreement/Tense

To choose the right verb form, check the tense of the sentence and whether the noun is singular or plural. Because “braids” is plural, only “are” can be correct, regardless of tense; B, C, and D are all singular.

56. Answer: J

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

We are looking for a *specific reason* for the braids’ inclusion. It doesn’t get any less specific than “to make them better.” Well, until you read “for the sake of the objects,” which is somehow even less specific. “For a useful purpose” is much less specific than simply *naming the purpose*: “to strengthen them.”

57. Answer: D

Concept: E105 - Pronouns: Agreement/Case

We need a pronoun which will fit in the grammar of this sentence. We can eliminate A, because “whom” should follow a preposition like “of.” We can similarly eliminate C,

because “whom” would need a preposition referring to it somewhere in the sentence. B adds “being” for no reason, and still incorrectly has “whom.” Don’t get flustered and assume you need a “whom” because you aren’t sure how it works: the answer is just “who.”

58. Answer: G

Concept: E105 - Pronouns: Agreement/Case

The verb “preserve” takes a direct object; something that *is preserved* by the subject. Who is preserving what? The Maine Indian Basketmakers Alliance, “a group,” preserves the art of basketmaking. J is wrong because it has no direct object. Between the other answers, we can rule out the pronouns (options F and H) because they are unclear. There isn’t an earlier mention of basketmaking which can serve as an antecedent. Instead, G is the best answer, as it refers more directly to basketmaking. “This art” can only refer to the one art being discussed, basketmaking.

59. Answer: A

Concept: E204 - Redundancy and Clarity

When you read option B, it should become immediately clear that we’re dealing with redundancy. Look back over the part of the sentence before the underline, and see what other options might repeat. Notably, the sentence already says “continue to,” which makes C and D redundant for their uses of “remain” and “keep on being.”

60. Answer: G

Concept: E208 - Moving Sentences

There’s a big hint in this sentence. It starts with “the black stripes,” which means we’re looking for somewhere that has already mentioned stripes on a basket. If you look quickly at all the options, only one fits with this: point B in paragraph 1. Sure enough, it fits there.

61. Answer: C

Concept: E102 - Comma Rules

This sentence begins with a modifier, “900 years ago,” which leads into the main independent clause with a comma. We can rule out option D right away for removing that important comma. The remaining part of the underline is basically only asking if we need a comma anywhere in the subject “Emperor Zhezong of China.” There should not be one separating the subject from the verb, so the comma after “China” is wrong in option A. The extra comma before “of” in option B is incorrect; the phrase “Emperor Zhezong of China” is all subject, and shouldn’t be split up at all.

62. Answer: J

Concept: E204 - Redundancy and Clarity

The wordy, redundant answer choices should jump out at you right away. G especially, because “previously come before it” is a glaring redundancy. H is also redundant, because the word “accurate” already implies time is being kept “correctly.” J is the shortest option, so it should get the most attention; usually the shortest option is correct in E204 questions. In this, it even highlights the redundancy of option F: “any other” is simpler and less redundant than “other clocks” when the sentence has already stated it was a clock being constructed.

63. Answer: B

Concept: E103 - Separating Independent Clauses: Period, Semicolon, Comma and FANBOYS

We have here two independent clauses. Don’t be distracted by the underlined part of the second clause; identifying the first as independent is enough to tell what’s going on. “This would be no simple timepiece” is a full sentence, and the next part is long and wordy. With a sentence that long, it’s almost always better to break it up into smaller sentences. The only option which does so correctly is B, which uses a period and capital letter without a conjunction.

64. Answer: J

Concept: E202 - Word Choice: Correct Word

These words all have similar meanings in certain contexts, but only one makes sense in *this* context. Because “astrology” refers to a system of beliefs, it makes the most sense to say a group of people “adhered to” it; followed it, stuck to it. This is a common use of the word “adhere,” whereas we do not use the words “continued,” “fixed,” and “linked” in this context in English.

65. Answer: D

Concept: E202 - Word Choice: Correct Word

This question has two homophone (same-sounding) word pairs for you to distinguish: imminent/ eminent, and lead/ led. “Imminent” means looming, about to happen. “Eminent” means prominent, well-known. “Lead” the verb, pronounced *lead*, is present-tense; “led” is the past tense. You might get mixed up with the noun “lead” which is pronounced like “led,” but with context you can tell you need the verb. Because the sentence is about a *well-known* scientist in the past, we must need “eminent” and “led,” the pair in option D.

66. Answer: G

Concept: E201 - Relevancy: Adding, Deleting, and Replacing Information

Read the question! We are not looking for the detail which is most likely correct, we are looking for the variation which will most clearly indicate that “Su Song relied on engineering achievements from earlier times.” Only one option references those earlier times: G.

67. Answer: A

Concept: E202 - Word Choice: Correct Word

These words/phrases have similar meanings, but only one is appropriate in this context. The easiest way to determine the right answer is by looking at the prepositions: which makes sense for the relationship of the timepiece and its tower? Our common sense tells us it must have been inside the tower. “Around” doesn’t make sense, as that would mean the tower is inside the timepiece. “Among” implies a multitude of towers. “Between” sounds like there are two towers with the timepiece in the middle. The preposition which makes the most sense is “within.”

68. Answer: G

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

If you look ahead in the sentence, you’ll see there’s a dash further down. Usually, the ACT only has dashes when they’re being used in a pair to separate a nonessential piece of information. So right away, we can try replacing the underline with another dash. Sure enough, it correctly punctuates the sentence, and we have our answer.

69. Answer: C

Concept: E205 - Transition Words/Phrases

Arguably, there doesn’t need to be a transition word here at all, which makes this a rather poor question. But because deletion isn’t an option, we have to choose the word which *best* fits the sentence. “Besides” doesn’t make sense, because it implies a logical relationship between this and the last sentence that simply isn’t there. “Sooner or later” makes the transition about the passage of time, which doesn’t have to do with these sentences either (even if we’re talking about a clock). “Thus” implies some sort of causation from one sentence to the next. The only transition word which doesn’t mistakenly imply something about the relationship between sentences is “lastly,” because it simply sequences the details according to the order they are presented.

70. Answer: G

Concept: E212 - Answer the Question/Keyword

Read the question! See that big “NOT?” That’s essential to answering this question. Plug in each possible answer and find out which one is *not* grammatically sound. The option which fails is G, because it creates a new independent clause (“they announced” has

both subject and predicate) with only a comma to connect to the last.

71. Answer: A

Concept: E101 - Verbs: Agreement/Tense

The vocabulary isn't important to this question at all. All that matters is that you recognize that the subject, "inner workings," is plural, and that 3 out of 4 options have singular verbs. Only A, "were," is a plural conjugation.

72. Answer: J

Concept: E205 - Transition Words/Phrases

Here is another transition question. The two ideas being transitioned from and into are, basically: there is an 11-foot water wheel, and water poured constantly into 36 buckets. What kind of logical relationship do these have? The second is not a rephrasing of the first, so "in other words" doesn't make sense. It is not an example of the first idea, either, so we can't use "for example." "Therefore" doesn't work either, because even though the wheel is the means for the water's movement, you can't logically deduce the second idea from the first. None of these transitions make sense, so the best option is to cut them altogether with option J.

73. Answer: A

Concept: E202 - Word Choice: Correct Word

This initially looks like an E205 question looking for the best transition word, but actually it is looking for you to recognize the grammatical needs of the sentence. Although "but" links ideas in a similar logical way to "nevertheless" and "regardless," unlike those two words, "but" is a conjunction. This underline is at the meeting point of two independent clauses, so there must be a conjunction with the period. Of these choices, only "but" can satisfy that grammatical requirement.

74. Answer: G

Concept: E104 - Nonessential Information: Commas, Dashes, Parentheses

The question is not looking for the correct type of punctuation; commas, dashes, and parentheses can all be used to nest nonessential information. What, then, is different between these answer choices? The *placement* of the punctuation. Only one option correctly marks the start and end of the nonessential information to set it apart from the main clause: option G. You can tell because "nonessential" information can be deleted from the sentence without affecting the grammar. If you delete what's between the punctuation in each option, you'll find that H and J no longer make sense (F just doesn't have any punctuation, which is another kind of wrong altogether).

75. Answer: A

Concept: E204 - Redundancy and Clarity

C and D are incorrect because they are unclear: without mentioning the “complexity,” the verbs “attain” and “coming within reach” don’t make any sense. Although B does still mention the “complexity,” it does so in a longer, more redundant phrase than A.

2176CPRE Science

1. Answer: D

Concept: *S101 Find in Text*

Scan for the keyword “friction” in Scientist 2’s paragraph. In the middle of the paragraph, Scientist 2 states, *The presence of mud and algae reduces friction between the rocks and the clay*. The text is explicitly stating that both mud and algae, answer choice **D**, reduce friction. Don’t get tricked by answer choice C because it is the first choice that lists two items.

2. Answer: H

Concept: *S104 Inference*

There are no numbers in the text, so scan for “wind”, which is mentioned in the last sentence of Scientist 1’s argument as *light winds*. Since the arguments mirror each other, look in the last sentence of the other arguments. Scientists 2 and 3 mention *strong winds* are needed to move the rocks. Since 80 miles per hour is a high speed for wind, the answer would include the arguments that mentioned *strong winds*, Scientists 2 and 3 only (choice **H**).

3. Answer: B

Concept: *S103 Argumentation and Evidence*

Scan the text for any words related to seismic activity, like *earthquakes*, *volcanoes*, or *tectonic plates*. Scientist 3 mentions *tectonic plates* and then states that *Minor vertical shifts in the plates cause the rocks to move downhill, leaving trails*. In other words, seismic activity → rocks move → trails. If there was no seismic activity recorded in the area where trails were found, the finding would weaken the argument of Scientist 3. The answer is **B**.

4. Answer: G

Concept: *S103 Inference*

There are no keywords to search for, other than “Scientist 1”, so skim Scientist 1’s argument. The last sentence states that *rocks are able to move several hundred meters in a few days*. The question has 200 m, which is around “several hundred meters”, and 72 hr, which is around “a few days”. Thus, the statement in the question would support Scientist 1’s answer because Scientist 1 indicated that rocks can move several hundred meters in a few days, which is choice **G**. Don’t get fooled by answer choice **F**, which changes the last word to “hours”.

5. Answer: B

Concept: *S101 Find in Text*

The first sentence in both Scientist 1’s and Scientist 2’s arguments mention “snowmelt”, which can be used to infer that they both suggest snowmelt as a cause of rock movement. You can confirm by reading further, because both scientists argue that the snowmelt contributes to rock movement in the playa, so the answer is **B**.

6. Answer: F

Concept: *S101 Find in Text, S304 Chemistry*

First, you need to know that water freezes at 0°C, so ice would not form between the temperatures of 4°C and 47°C. Skim Scientist 2’s argument for anything related to the question. The key information is *the temperature in the playa does not get cold enough for ice to form*, which means the temperature does not get below 0°C. This fits with the information in the question, so the answer is **F**.

7. Answer: C

Concept: *S101 Find in Text, S302 Science Math*

Scan Scientist 1’s argument for a mention of width. The text explains that the trails are 2/3 as wide as the rocks. A 33 cm wide trail is 2/3 as wide as the rock itself, so divide 33 by 2/3 to get the answer. Since you don’t have a calculator, you can do the math by hand ($\frac{33}{\frac{2}{3}} = 33 \times \frac{3}{2} = \frac{99}{2} = 49.5 \sim 50$), or estimate 1.5 times 33.

8. Answer: J

Concept: *S205 Extrapolation*

Words like “If” and “most likely” indicate that this is an extrapolation question. The question also tells you to look at Experiment 2, which is represented by Table 2. A volume of 450 mL is lower than any of the values in the Volume column (second column from right), which decrease from top to bottom. Temperature is shown one column to the left of Volume and increases from top to bottom. As volume decreases, temperature increases. The highest temperature on the table is 60°C with 476 mL, so 450 mL would have a temperature higher than 60°C (choice **J**).

9. Answer: C

Concept: *S104 Inference, S102 Experimental Design/Parameters*

When a question starts with “Suppose”, it means the scenario did not actually occur and you must infer what would happen. Use common sense here. What happens if you leave a bottle of diet cola open for 12 hours? It gets flat! Flat = less CO₂ dissolved in the soda. The answer is **C** because there would be less CO₂ dissolved in the soda if it had been left open for 12 hours.

10. Answer: J

Concept: *S202 Reading a Graph*

When a word is italicized, it’s the first time you’ve seen the word before on the test, so you won’t find it earlier in the text. A millimole is defined as 0.044 g. You need to know which trials produced at least 1 millimole, so you need to know which trials produced at least 0.044 g of CO₂. Mass of CO₂ produced is shown in the rightmost column of both tables, and all values are greater than 0.044, so all 8 trials (**J**) produced at least 1 millimole.

11. Answer: B

Concept: *S203 Reading a Figure*

Look at Figure 1. “Submerged in a liquid” means under the surface of the liquid. Tube A, which is labeled at the top of the figure, has both ends above the liquid. Tube B has one end that is definitely under the surface of the liquid in the jar. The question is asking which tube had at least one end submerged, so the answer is **B**, Tube B only.

12. Answer: F

Concept: *S204 Trends, S302 Science Math*

A direct relationship is a relationship between two variables that are both increasing or both decreasing. An inverse relationship has one variable increasing while the other decreases, and vice versa. In this question, we’re looking at the relationship between volume of liquid (second column from the right in both tables) and mass of CO₂ produced (rightmost column). In both tables, as volume increases, mass of CO₂ increases, although it’s easier to see on Table 2. This is a direct relationship, which is described in choice **F**.

13. Answer: B

Concept: *S102 Experimental Design/Parameters*

If you can hold all four pieces of information in your head, skim the text to find where there mentioned. If that doesn’t work, look for each step separately. First, the *solid substance was inserted into the end of Tube A* (3). Second, *Tube A was then attached to...diet cola* (4). Third, *The clamp was removed* (1). Fourth, *The liquid ...was measured* (2). The answer is choice **B**: 3, 4, 1, 2.

14. Answer: H

Concept: *S102 Experimental Design/Parameters, S201 Reading a Table*

We don’t care what room temperature is; we’re only given the information to add another step to the process of finding the answer. All we need is the number of trials that were lower than 25°C. Table 2 has Temperature listed in the second column from the left and shows 1 trial under 25°C. Table 1 doesn’t show temperature, which means it was probably constant (the same) for all trials; all you need to do is find out whether that temperature was above or below 25°C. If you look right above the table, you see that Experiment 1 was done at 3°C, so Trials 1-4 were done below 25°C. Thus, 5 trials were done below 25°C and the answer is **H**.

15. Answer: B

Concept: *S204 Trends*

Look for information in the question that is also in an axis label or graph key. In Figure 1, the x-axis is “nickel concentration”. You’re looking to see when nickel concentration increases, which is from left to right. You also need “iron” in “Species M”, which is the line with the dark square. From left to right, that line decreases only, choice **B**.

16. Answer: G

Concept: *S201 Reading a Table*

The useful information in the question is: Table 1, Species U, pH of 6, 10 μM . You're looking for dry mass. In Table 1, Species U is the rightmost column. pH of 6 is found in Trials 5-8, in the horizontal middle of the table. 10 μM is Trial 7. The rightmost column of Trial 7 has a dry mass of 8.1 g, so the answer is **G**.

17. Answer: A

Concept: *S204 Trends*

This question is asking you to look at Species M plants in Table 1, which are in the second column from the right. In the Species M column, the highest dry mass is found with the lowest nickel concentration (middle column) and a pH of 7 or 6. The answer choice with the lowest nickel concentration and pH of 7 or 6 is **A**, with a pH of 6 and nickel concentration of 0 μM .

18. Answer: H

Concept: *S201 Reading a Table, S202 Reading a Graph*

When you're given a table and a figure, you will likely have to find information on one and then use it to find information on the other. We are given Species M and Solution 3, and asked for zinc. Zinc is on the y-axis of Figure 1, which requires a nickel concentration for the x-axis. Look on Table 1 where Solution 3 (third row of data) has a nickel concentration of 10 μM . On Figure 1, zinc and Species M are represented by the line with white squares. The white square at 10 μM on the x-axis corresponds to 200 $\mu\text{g/g}$ on the y-axis. The answer is **H**.

19. Answer: D

Concept: *S204 Trends, S202 Reading a Graph*

You're using both Table 1 and Figure 1, and you need to order Solutions 1-4 based on iron content. In Table 1, Solutions 1, 2, 3, and 4 (top 4 rows of data) correspond to a nickel concentration of 0, 5, 10, and 15 μM , respectively. On Figure 1, iron content is represented by the lines with dark triangles and dark squares, both of which decrease as nickel concentration increases. Thus, iron decreases as nickel decreases, so the solutions in order of increasing iron would be 4, 3, 2, 1 (choice **D**).

20. Answer: J

Concept: *S302 Science Math, S201 Reading a Table*

In this question, you have to compare dry mass of Species U with Solution 3 and the dry mass of Species M with Solution 6. Species U is the rightmost column and Solution 3 is the third row of data from the top, so this combination has a dry mass of 9.6. Species M is the second column from the right and Solution 6 is the 6th row of data, so this combination has a dry mass of 28.8. 9.6 is around 10 and 28.8 is around 30, so the Species U/Solution 3 dry mass is about 1/3 of the Species M/Solution 6 dry mass. However, the question is asking about the Species M/Solution 6 dry mass, so the answer is **J**, 3 times as great.

21. Answer: A

Concept: *S204 Trends*

The question is asking for the relationship between temperature and number of cycles in Experiment 1. The results of Experiment 1 are shown in Figure 1. In Figure 1, the x-axis is temperature and goes left to right. The number of cycles is the y-axis. From left to right, the number of cycles increased only, for all catalysts. The answer is **A**.

22. Answer: G

Concept: *S202 Reading a Graph*

The question is asking for which catalyst and gives the following information: Experiment 1, 26 cycles, and 450°C. On Figure 1, which shows the results of Experiment 1, follow the x-axis to 450. Follow the 450 line up to where it corresponds with 26 cycles on the y-axis. There is a dark triangle, which corresponds with Catalyst X (choice **G**), according to the key.

23. Answer: C

Concept: *S102 Experimental Design/Parameters*

The question is asking about Steps 1-4, so you'll need to look back in the text. The question is asking about the path H₂ and N₂ take during the experiment. Scan Steps 1-4, looking for the key words in the answer choices (reactor, condenser, Pipe A, and Pipe B). The key words occur in the following order: reactor, Pipe A, condenser, Pipe B, reactor. This order matches choice **C**.

24. Answer: J

Concept: *S202 Reading a Graph*

The results of Experiment 1 are shown on Figure 1. In the graph, temperature is the x-axis and number of cycles is the y-axis, so the information "H₂ and N₂ were consumed" is unhelpful and can be ignored. At 375°C on the x-axis, 3 of the 4 catalysts are below 20 cycles on the y-axis. These catalysts are represented on the graph by a white star, dark circle, and dark triangle, corresponding with Catalysts Z, Y, and X, respectively. This matches choice **J**.

25. Answer: B

Concept: *S205 Extrapolation*

In Figure 2, which shows the results of Experiment 2, 225 atm is to the right of center on the x-axis. 425°C is between 400°C and 450°C, so the answer will be between the dashed line with dark squares and the dashed-dotted line with white stars. At 225 atm, the white star is around 240 and the dark square is around 350, so the closest answer is **B**.

26. Answer: J

Concept: *S102 Experimental Design/Parameters, S304 Chemistry*

When you're asked for the state of matter of a substance, you need to find the melting point, boiling point, and current temperature of the substance. The melting point (-77°C) and boiling

point (-33°C) are given in the question. To find out the temperature when the NH_3 exited the condenser, scan for “ NH_3 ” and “condenser” in the description of the experiment. In steps 3 and 4, when NH_3 is entering and exiting the condenser, the temperature is -50°C , which is between the melting point and boiling point. Thus, NH_3 is a liquid, choice **J**. (Note that the text doesn’t explicitly say “ NH_3 exited the condenser”. However, in Step 3, we see *A mixture of NH_3 ...flowed...to a -50°C condenser* and in Step 4 we see *NH_3 condensed and exited the apparatus*. Remember that “apparatus” means tool or piece of equipment, such as a condenser.)

27. Answer: A

Concept: *S202 Reading a Graph*

When the question seems long and winding, take it one sentence at a time. First, look at Figure 2, which shows the results of Experiment 2. At 550 kg on the y-axis, the white circle, which is 300°C on the key, is at 150 atm. Figure 2 doesn’t mention a specific catalyst, but the text right above it mentions Catalyst Z. Next, the question asks you to look on Figure 1 and find a number of cycle. On Figure 1, 300°C on the x-axis is on the left y-axis, and Catalyst Z is a star. The star at 300°C is around 2 cycles. The answer is choice **A**, less than 5. If you’d like to confirm that Experiment 1 was also done at 150 atm, you can skim the text above Figure 1.

28. Answer: F

Concept: *S202 Reading a Graph*

The question is asking you to look on Figure 1 at 200 Hz and 10% relative humidity, and then find maximum α and temperature at that maximum. According to the key, 200 Hz is the dashed-dotted line, which is the lowest one. Humidity isn’t mentioned on the graph, which means it’s probably not important – you can confirm this by skimming the text right above the graph. The maximum means the highest point on the graph, which occurs near the bottom left of the dashed-dotted line. This maximum is around an α of 3 (y-axis) and a temperature around -5°C (x-axis). The correct answer is **F**.

29. Answer: B

Concept: *S202 Reading a Graph*

Look at the 1,000 Hz line (solid line) on Figure 2. “Attenuation coefficient” is not italicized, which means it shows up in the text. Skim the text to confirm that the attenuation coefficient is α . α reaches a minimum (lowest point) when the solid line is at its lowest, around 40% relative humidity on the x-axis. 20°C is unimportant information here, because the text states all points in Figure 2 refer to a temperature of 20°C . The closest answer is 45%, choice **B**.

30. Answer: G

Concept: *S206 Correlation, S204 Trends*

The question is asking about trends on Figures 1 and 2. “More strongly affected” means a greater change or slope on the graph. If you compare the 200 Hz line (dashed-dotted line) on both graphs, Figure 1 has bigger changes, which means temperature (x-axis) has the strongest effect

on α (y-axis). Keep in mind the two graphs have different y-axis scales. The change in α for the 200 Hz line on Figure 1 was about 2.5 dB, so the answer is **G**.

31. Answer: C

Concept: *S202 Reading a Graph*

In Figure 1, relative humidity is on the x-axis and α is on the y-axis. The 1,000 Hz line (solid line) crosses 18 on the y-axis 4 times on the graph, so the answer is **C**. 10% relative humidity is unimportant information because, according to the text right above the graph, all points are at 10% humidity.

32. Answer: J

Concept: *S204 Trends*

The question starts with “suppose”, so it’s likely an extrapolation question. Figure out what you know and then figure out what to extrapolate. You know to look at Figure 2 and that temperature is at 20°C and 45% relative humidity. The “suppose” part is asking you about a 150 Hz wave and a 1,100 Hz wave. On Figure 2, the air temperature is at 20°C for all values, according to the text above the graph, so ignore that number. A relative humidity of 45% is about halfway across the x-axis. At that relative humidity (and for all other relative humidities), the 1,000 Hz (solid) line is above the 200 Hz (dashed-dotted) line, so you can infer that 1,100 Hz would have a higher α than 150 Hz. According to the text, α is how fast the energy is lost, so 1,100 Hz would lose more energy than 150 Hz, because 1,100 Hz would have a higher α . Thus, the answer is **J**.

33. Answer: B

Concept: *S207 Infer from Data*

First, look at the text right above Figure 1, which states the relative humidity is 10%. On the graph in the question, at 10% humidity (far left of the x-axis), the α at 1,000 Hz is about 14, at 500 Hz is about 9, and at 200 Hz is about 3. In Figure 1, the 1,000 Hz line (solid) is about 14 when the temperature is around 0°, 20°, and 60°C. Both 0° and 20° are answer choices, so check 500 Hz too. In Figure 1, the 500 Hz line (dashed) line is about 9 at around 0° and 5°, so the answer is 0°C (choice **B**).

34. Answer: G

Concept: *S204 Trends*

In Table 1, the ratio of fructose to glucose increases from Sweetener Q through U. In Table 2, which shows the results of Study 1, from Sweetener Q through U (top to bottom of the second column from the left), the sweetener solution consumed (second column from the right) decreased only. Thus, the answer is **G**.

35. Answer: D

Concept: *S104 Inference, S102 Experimental Design/Parameters*

This question can be solved most easily using common sense. In order to measure the amount of sweetener consumed by *each* rat, the rats have to be in separate cages. The answer is choice **D**.

36. Answer: H

Concept: *S205 Extrapolation*

In Table 1, there is no solution with 46% fructose and 54% glucose, so you will be looking for an answer in between Sweeteners R and S. In Table 4, which shows the results of Study 3, Sweetener R (middle column) had 1,125 pM ghrelin (rightmost column) and Sweetener S had 1,279 pM ghrelin. Thus, we would expect the “in between” solution to have a ghrelin concentration between 1,125 pM and 1,279 pM, choice **H**.

37. Answer: C

Concept: *S103 Argumentation and Evidence*

The statement is saying that the rats that ate the least solid food are the same rats who had the lowest leptin. Solid food is on Table 2; the least solid food was Group 1 (top row). Leptin is on Table 3; the lowest leptin was in Group 5 (bottom row). Thus, the data do not support the statement and the answer is **C**.

38. Answer: H

Concept: *S301 Inquiry Process, S102 Experimental Design/Parameters*

A control group is the group that has none or the normal amount of something, in order to compare it to the experimental group. In this experiment, if the scientists wanted to have a control for the effect of consuming a sweeter solution on the consumption of solid food, the control group should not get any sweetener solution but have everything else the same as the other groups. The other groups get solid food plus the water the sweetener is dissolved in. Thus, the control group should only get solid food and water, choice **H**.

39. Answer: B

Concept: *S302 Science Math, S201 Reading a Table*

In Table 2, which shows the results of Study 1, the group with Sweetener S (middle row) had 16 g of solid food (rightmost column). According to Table 1, Sweetener 3 had 50% by mass of fructose. If 50% of the mass is fructose, then 50% of 200g would be fructose. $0.50 \times 200 = 100$. Thus, the answer is **B**.

40. Answer: J

Concept: *S102 Experimental Design/Parameters*

To find the difference between experiments, start by looking at the first line of the second experiment listed in the question, which is Study 3. The text states *Study 2 was repeated, except that Indicator P (which reacts with ghrelin to form a yellow dye) was used instead of Indicator N*. According to the first sentence of the text, ghrelin is a hormone. Thus, neither I and II have stayed the same and the answer is **J**.

