QUESTION 1)

Section 102(g)(1) governs interference proceedings, which requires all elements of the claim to be present for anticipation, and requires that there be overlapping claims (satisfied because Hudson University's ("HU") claim language is identical to Pat's Claim 1). It appears that Pat conceived first (May 1st/2nd of 2012), but was last to reduce to practice ("RTP") (8/1/12 if corroborated, but if not the 3/16/13 filing date can be used as constructive RTP). Pat may still prevail over the first to reduce to practice (HU) if Pat was diligent from a time prior to HU's entry into the field through to his own RTP, provided of course that Pat didn't abandon, suppress, or conceal his invention after RTP. 35 **U.S.C.** §102(g)(1); Barbacid.

HU might argue that there isn't an interference proceeding because it conceived when it published the magazine article, which came prior to Pat's conception (thus making HU first to conceive and first RTP and clearly entitled to the patent). This is a weak argument. HU would also argue that Pat abandoned, suppressed, or concealed his invention after RTP because it took him 7.5 months to file for patent afterwards. Pat would respond that the delay wasn't deliberate, and he didn't enlist the assistance of counsel, thus excusing his "mere delay." Peeler.

QUESTION 2)

Subject Matter

Almost everything is patentable, even living organisms with markedly different characteristics than those occurring in nature, so long as the invention in question isn't a law of nature, physical phenomena, or abstract idea. Chakrabarty; Bilski. For process patents, the application of a natural occurrence must add something more than what would be conventional (can't just be an expected end). Prometheus. While a close call, Pat's invention probably passes muster because, similar to the pregnancy test that turned blue when it came into contact with a hormone that indicates pregnancy, Pat programmed his device to send a signal to the LED light when sulfur was detected (not natural).

Section 112

Utility

To be "useful" the invention must fulfill three requirements. First, it must have practical utility (**specific** and **substantial**. Brenner; in re Brana. Second, it must be beneficial (not frivolous, injurious, or immoral). Lowell; Juicy Whip. Third, it must work for the intended purpose and not be inherently unbelievable (can't patent perpetual motion machine/cold fusion). Newman; Swartz. Pat's invention (Claims 1 and 2) passes all of these relatively low hurdles because its use is well defined and presently available to the public (it detects rotten hard-boiled eggs when in close proximity to them), it doesn't harm society (helps save society from stinky eggs), and it isn't inherently unbelievable (gaseous molecular detectors have been around since 1908).

Enablement

If it would take undue experimentation for the PHOSITA to make/use an invention based on the specification, then the claim isn't enabled and will be rendered invalid. This is assessed on a claim-by-claim basis at the time of filing, but the specification can leave some gaps so long as the PHOSITA would be able to figure it out without undue experimentation. Sawyer & Mann; in re Wands.

First, the specification discusses "reprogramming" a German sulfur detector ("GSD"), but neither the claims nor the specification provide any further guidance. Pat, who isn't an engineer but has some technical skills, was able to "reprogram" the device relatively quickly (between May and August). The PHOSITA would presumably have more skill in the art than Pat, but this minimal guidance is on the very edge of what will be permissible for enablement. Additionally, the concept of "send[ing] a signal to a [LED]" is similarly ill defined and leaves the PHOSITA with little guidance.

Moreover, Claim 1, an independent claim, discusses a "means for detecting . . . sulfur." Little guidance is provided for how this is to be accomplished. Also, Claim 1's "indicator that such level . . . has been detected" is similarly lacking in guidance. Claim 2 probably passes muster because of its antecedent basis referring back to "[t]he device of Claim 1," but it is a dependent claim and if Claim 1 is found invalid for any reason Claim 2 likely will be as well.

This is a close call, but because gaseous detectors have been around since 1908, programming has become increasingly more user-friendly and common-place, and the fact that Pat was able to perfect this on his own in three months, the PHOSITA would probably be able to fill in these gaps and the patent will survive an enablement challenge.

Written Description

Written description is a subjective test that asks whether the PHOSITA would believe that the inventor possessed the invention at the time of filing based on the specification. Gentry Gallery; Ariad.

The claims must be narrower in scope than the specification. In re Fisher (holding claim for hormone containing "at least 1 unit/mg" not enabled when specification only disclosed potencies between 1.11 and 2.3 units/mg). Here, the specification discloses an "egg" in one sentence and a "hard-boiled egg" in another. The claims however, refer exclusively to "eggs" (which is broader than hard-boiled eggs). Eli Lilly (rejecting patent claim for human DNA insulin sequence because specification only disclosed rat DNA sequence). While eggs can rot and emit sulfur without being hard-boiled first, I would point this out to Pat as a possible area of contention by ED.

Moreover, Claims 1 and 2 present an issue because it is not clear that Pat possessed the programmed detector that provides a signal (Claim 1) to the LED indicator (Claim 2). The specification provides little guidance, and I think that the PHOSITA would be skeptical based on the scant specification that Pat actually possessed the invention at the time of filing (Pat could try to rebut this with corroborating evidence about the date of his programming or functionality of his device).

Definiteness

Claims are only indefinite if the PHOSITA, in light of the specification, would determine that the claims are "insolubly ambiguous." Orthokinetics.

Claim 1's "means for detecting" presents issues because the specification doesn't provide a structure except for a vague reference that the "detector senses . . . sulfur" at certain levels (thus making it impossible to determine equivalents). Moreover, Claim 2 could be solidified by

changing "device of Claim 1" to "said device," but I think the claim would survive with the antecedent basis as is because the meaning is discernible (no other device is claimed). Energizer.

As a side note, the specification describes detecting eggs that are "present nearby." This is similar to Orthokinetics where the court held that "so dimensioned" wasn't indefinite because a PHOSITA would recognize how to obtain the dimensions for the wheelchair. Similarly, a PHOSITA could figure out the detection distance of the device described as "present nearby."

Section 102 – Novelty/Statutory Bars

The date of invention usually occurs when the inventor has practiced an embodiment of the invention encompassing all elements and appreciated that the invention works for its intended purpose (RTP). However, if this can't be corroborated, then the constructive RTP is the date of filing for patent.

Pat conceived on 5/2/12 and worked diligently (presumably) until he completed the device on 8/1/12. This represents his first possible RTP for both Claims 1 and 2, although it must be corroborated by witnesses or authenticated with lab notebooks (if any). Absent corroboration, the 3/16/13 filing date represents constructive RTP.

102a

A patent can be rendered invalid under 102a if, before the date of invention, it was known or used by others in the U.S. or patented or described in a printed publication anywhere. 35 **U.S.C.** §102(a). To anticipate a claim, the prior art reference must have every element of the claim.

The first piece of prior art is the Geiger Counter. These have been around since 1908, which place it well before Pat's date of invention. However, this doesn't anticipate Claim 1 because it doesn't disclose the detection of sulfur (only covers nuclear/radioactive material) and it doesn't disclose an indicator. Nor does it anticipate Claim 2 because it doesn't disclose an LED indicator.

The second piece of prior art is the GSD. 102a requires the prior art to be known/used in the U.S. and the facts say that the detector was only available in Germany. However, Pat based his device on one of them he purchased on 4/7/12 (prior to his invention date), and we can safely assume that other people have brought these devices back from Germany or ordered them online for use in the U.S. This might anticipate Claim 1 because it covers a means for detecting sulfur (which is what Pat's does even though he dubbed it an "egg detector"), and likely has an indicator of some sort for when sulfur is found. Pat's response would be that the means for detecting sulfur and the indicator in his device are different because he reprogrammed it and his

indicator is different. It doesn't anticipate Claim 2, though, because there is no indication that it had an LED. The GSD likely anticipates Claim 1.

The third piece of prior art is the Nature Magazine publication. While the date of publication is subject to debate, the latest possible date is 3/20/12, which is before Pat's invention date. Dissemination and public accessibility are the keys for determining when something qualifies as a printed publication. Receipt by the publisher on 1/1/12 won't count. Being sent out for peer-review won't count either because it is probably "implicitly confidential," as were the Navy progress letters, because the magazine wouldn't want to leak its material prior to publication. Aluminum Co. of Am. v. Reynolds. Similarly, the acceptance for publication probably doesn't make it publicly accessible (unless the articles are published on the website upon acceptance) and so the most likely date is 3/20/12 when it hits newsstands. Either way, this won't anticipate either of Pat's claims. It lacks the means for detecting sulfur and indicator of Claim 1, as well as the LED of Claim 2.

The final piece of prior art is HU's Egg Strips. These were known/used in the U.S. on 7/1/12 (prior to Pat's date of invention). Rosaire. However, the strips lack the programmed (and re-useable) indicator of Claim 1 and the LED of Claim 2, and thus don't anticipate.

102b

A patent is invalid under 102b if, more than one year prior to filing, it was patented or described in a printed publication anywhere, or was in public use or on sale in this country. 35 **U.S.C.** §102(b). To anticipate a claim, the prior art reference must have every element of the claim. The 102b critical date is one year prior to Pat's filing date – 3/16/12. Because Pat filed for patent less than 1 year after his invention date (August 2012 – March 2013 is only 7 months), 102b doesn't admit any additional prior art references that weren't already considered under 102a.

As a result, there is no need to consider potential experimental uses under City of Elizabeth and Lough (don't appear to be any here anyway) or what constitutes a public use under Egbert, Beachcombers, and Moleculon.

The only potential issue is whether any GSD was on-sale/used in the U.S. The facts suggest that they were only sold in Germany (not on-sale in U.S.). Under the 102a analysis above, I assumed that some people probably did publicly use the GSD in the U.S., and if the use occurred before 3/16/12, then the same anticipation analysis would apply.

102c

Pat doesn't anticipate himself under 102c because he didn't expressly abandon his invention or attempt to exploit it as a trade secret.

102e

To qualify, every element of the invention must be included in a patent application in the U.S. or a PCT application (written in English) before Pat's invention date; if a foreign PCT patent in English was filed prior to the U.S. patent, this backdates to the time of foreign filing. HU's patent is 102e prior art (filed on 7/15/12), but as discussed above, it doesn't anticipate either of Pat's claims under the all elements rule.

102f

A person shall be entitled to a patent unless he did not himself invent the subject matter sought to be patented (global inquiry). Help/advice from another isn't derivation unless it: 1) encompasses the plan of improvement (possesses all the elements) and 2) is fully enabling. Agawam; Campbell. The GSD could pose a problem for Pat because he admits in the specification that his invention is based on it. As discussed above, the GSD could potentially anticipate Claim 1, but Claim 2 is not anticipated (although that is irrelevant if Claim 1 is invalidated).

102g

Section 102g1 only applies if there is an interference proceeding (requires overlapping claims) which isn't satisfied here because ED doesn't have a patent. 102(g)(2) applies if the invention was **made first by another in the U.S.** without abandonment, suppression, or concealment. As discussed above, none of the four prior art references anticipate either claim of Pat's patent, with the potential exception of the GSD anticipating Claim 1. However, the GSD would likely fail the "made in U.S." requirement of 102g2, and thus likely won't pose any additional problems for Pat.

Section 103 – Obviousness

This analysis measures the technical, not economic, triviality at the **time of invention**, and patents issued by the PTO have a presumption of validity. Generally, all 102 art qualifies as prior art for the obviousness analysis, so long as they are pertinent. Hazeltine; in re Bass; OddzOn; in re Foster. Pertinence requires a two prong inquiry: 1) whether the art is from the same field of endeavor, regardless of the problem addressed (gaseous detection), and 2) if the reference isn't within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Clay.

Graham lays out the framework for determining obviousness: 1) determine the content and scope of the prior art, 2) ascertain the differences between it and the claims at issue, 3) determine PHOSITA's skill level (PHOSITA has ordinary creativity and is not an automaton under KSR), 4) determine the obviousness/nonobviousness of the subject matter, and (possibly)

5) consider relevant secondary factors. The PHOSITA is deemed to know of all pertinent prior art. In re Winslow. An invention can be obvious if each necessary element is included in a prior art reference, there is no requirement that the prior art teach, suggest, or motivate such combination. KSR.

Step 1 (identifying prior art) and Step 2 (ascertaining differences). The pieces of prior art are laid out above, and include the Geiger Counter (discusses use of gases to measure particles emitted by nuclear material, and presumably a way to let the user know that such particles were detected), GSD (uses gases to measure particles emitted by sulfur, and presumably an indicator to let the user know that particles were detected), Nature Magazine publication (disclosing that eggs emit a measurable amount of sulfur), and HU's Egg Strips (discloses a one-time use for detecting sulfur and indicating such detection). With the arguable exception of the Geiger Counter (deals with radioactivity), the other three references seem to be pertinent as falling within the same field/problems.

Step 3 (level of PHOSITA). The PHOSITA here would likely be a skilled mechanic with a strong background in programming.

Step 4 (determine obviousness). Assuming all of these pieces of prior art are admissible, Pat's invention is probably obvious. As one Supreme Court Justice opined, "The only nonobvious patent is the one this Court hasn't gotten its hands on" (paraphrased). Under KSR, design incentives/market forces from other fields can prompt variations. Most devices today are automated (have some kind of programming) and LED indicators are frequently used on cell phones, etc. to grab the user's attention. These motivations likely spurred Pat to automate the sulfur detector and add the LED. But in light of the prior art, this is an obvious combination that yields predictable results (the sulfur detector still detects sulfur [the programming doesn't change this] and the LED still grabs the users attention, so the combination is likely obvious). KSR.

Step 5 (secondary factors). None of the secondary factors undercut the finding of obviousness. There is no indication of a failure of others, long-felt but unsolved needs, or unexpected results (disbelief by experts) as in Adams. In fact ED would argue that HU's simultaneous invention further supports the proposition that this is obvious. In rebutting this, Pat would differentiate his device from HU's as discussed above.

QUESTION 3)

ED will be sued literal infringement of Claims 1 and 2 under 35 **U.S.C.** §271(a) (active inducement and contributory infringement were not considered as per the instructions). The first step involves construing the claims (question of law) starting with the claim language. If the claim is ambiguous, intrinsic evidence (other claims, specification, prosecution history) may be considered, and if the claim language is still ambiguous, extrinsic evidence (dictionaries, experts, the inventor) may be consulted. Phillips. Once construed, the jury will compare each claim and ED's product to evaluate literal infringement (question of fact). If applicable, Pat will try to use the Doctrine of Equivalents ("DoE") to enlarge the scope of his claims. The DoE analysis queries whether each element of the device in question performs substantially the same function, way, and result. Winans.

Before the claims are even construed, ED would want to argue that Pat's patent is invalid on any of the grounds discussed in Question 2). If that fails, ED would then argue non-infringement.

Pat's claim 1 includes the following elements: a means for detecting sulfur and an indicator that such level has been detected. This presents a slight problem for ED because experts agree that the dogs are detecting sulfur when they sniff. Pat's means plus function claim is limited to the structure defined in the specification and its equivalents. 35 **U.S.C.** §112¶6. Pat's specification isn't clear as to exactly how the sulfur is detected, but ED will argue that using dogs' noses certainly isn't covered under Claim 1. ED might also argue that its dogs can detect sulfur at **less than** 2000 milli-Roentgents and thus doesn't infringe Claim 1. Moreover, ED will argue that a barking/clawing dog isn't covered by the "indicator" in Claim 1.

In response, Pat will likely argue that the doctrine of equivalents is satisfied for both elements of Claim 1. He will say that ED's dogs use the same function (detecting sulfur), way (providing feedback to user when sulfur is detected), and result (locating rotten egg). He might argue that his detector is a "pioneering invention" and thus subject to a broad scope. After all, if pilots adjusting ropes was found to be equivalent to a rope-and-pulley system, surely a barking, sulfur-smelling dog is equivalent to a sulfur detector with an indicator, right? Wright Bros. This argument isn't likely to prevail because sulfur detectors aren't a pioneering invention (GSD has been in existence), and sniffing/barking isn't similar enough to detecting/indicating for DoE. Therefore, it is unlikely that any court will find Claim 1 infringed by ED's dogs.

ED will have an easier argument that the indication provided by the dogs isn't an LED and thus doesn't infringe Claim 2. I don't think that Pat has a serious claim that the barking/clawing indication of the dogs directly infringes an LED, even under DoE.

Although not raised here, Pat's description of a "button to reset and find another egg" in the specification, but failure to claim it in the claims operates as a disclaimer of that feature. Johnson & Johnson.

Also, ED can't rely on prosecution history estoppel because Pat didn't narrow either of his claims during the prosecution process. If Pat had narrowed either of his claims, ED would have argued that unless the claimed equivalent (barking dogs) was unforeseeable to the amendment, DoE doesn't apply. Festo.

An additional defense to infringement is inequitable conduct. If ED could sustain its burden, then all of Pat's claims would be invalidated (and ED might even recover attorney's fees). To prove inequitable conduct, the plaintiff must show both (**analyzed separately**): 1) intent (clear and convincing standard) and 2) materiality. Therasense. To satisfy intent, the accused infringer must prove that the applicant knew of the reference, knew it was material, and made a deliberate decision to withhold it (an intent to deceive must be the single most reasonable inference). The materiality standard is "but-for" (satisfied if PTO would have disallowed a claim if it had been aware of the undisclosed prior art), with the sole exception being for affirmative egregious misconduct.

Here, it appears that Pat failed to disclose **any** source of prior art, including the GSD that he based his invention off of. Pat likely couldn't have known about HU's testing strips (no indication that HU publicized it and its patent wasn't published until 1/15/14 which is well after Pat's filing date), and the Nature Magazine probably didn't need to be disclosed (it discloses the discovery of natural facts and isn't an anticipating reference), but certainly the GSD that Pat described in his specification should have been disclosed. Under Therasense, it will be hard to prove intent here (obviously Pat wasn't trying to hide the existence of the GSD because he included it in his specification), and he filed the patent with no legal assistance so it doesn't seem deliberate. However, it is pretty clear that the materiality standard is satisfied. As discussed above, it is entirely possible that the GSD anticipated Pat's Claim 1 which would have caused the PTO to disallow Claim 1. However, because **both** materiality and intent are required, and there seems to be no intent to deceive (it's not the single most reasonable inference), Pat probably isn't guilty of inequitable conduct.

QUESTION 4)

My answer to Question 1) would change significantly under the AIA. The AIA eliminates interference proceedings; we no longer care who conceived first, all that matters is who filed or publicly disclosed first. Either way, HU would be entitled to the patent. If its publication about sulfur smell emitted form hardboiled eggs is considered as disclosing part of the invention (unlikely) this would bar Pat because it came on 3/20/12 (at the latest) which is before Pat's 3/16/13 filing date. Even if the publication were disregarded, however, HU would still prevail and receive the patent because its filing date of 7/15/12 precedes Pat's (3/16/13). Therefore, because the AIA eliminates interference proceedings, Pat's diligence is irrelevant and HU will be awarded the patent.

My answer to Question 2) would also change. Generally, under the AIA, the first filer wins the patent, except where: 1) the second filer was first to "publicly disclose" the invention, 2) the first filer obtained the invention, directly or indirectly, from the second filer ("derivation proceedings"), or 3) the first filer abandons the application prior to publication or issuance. As between HU and Pat, HU gets the patent because it filed first and none of the exceptions are met (Pat wasn't the first to publicly disclose, HU didn't get the invention from Pat, and HU never abandoned its invention because only 14 days elapsed between its RTP and filing date). This means that Pat's claim 1 is invalid, and because Claim 2 is dependent on Claim 1, that claim is likely invalid as well.

The inquiry could end there, but the analysis for prior art under old 102a, and 102b changes under the AIA as well. The 102 prior art analysis is **global** for all categories and is based on the **filing date** (not invention date). The new 102a states that a person is entitled to a patent unless:

> 1) "the claimed invention was patented, described in a printed publication, or in public use, on sale, or **otherwise available to the public** [new addition] before the effective filing date of the claimed invention; or
>
> 2) the claimed invention was described in a patent issued [to another] … or in [another's] application for patent published … [that] was effectively filed before the effective filing date of the claimed invention."

According to the AIA's legislative history, "public use" is also redefined such that Egbert and Beachcombers are overruled (those no longer constitute public use). Additionally 102f is eliminated (as are 102g1 interferences). Moreover, under the new 103, all 102-art is prior art, and obviousness is measured at the **effective filing date**. Also, under 102e, patentee gets priority back to foreign filing date if in PCT country/ in English.

With this in mind, the classifications of prior art in Question 2) change slightly. As per the AIA, anything before P's 3/16/13 filing date will now be prior art under 102a. This includes the Geiger Counter, the German sulfur detector, Nature Magazine's publication, and HU's Egg Strips. (If the German sulfur detector was never known/used in the U.S. it wouldn't count as prior art under the old 102a, but it would count under the AIA). Moreover, because these all qualify as 102a prior art, they can all be considered for obviousness under the new 103. I believe that the end result would be the same, and this combination of prior art would be sufficient to render Pat's patent obvious (although we wouldn't even get this far because Pat's patent would be rejected after it was determined that he wasn't the first filer).