Quiz 3: TDD and Advanced Rails

- No books, notes, or electronic devices allowed.
- Time limit is 30 minutes.
- 18 multiple-choice questions, points indicated per question, 25 points total. Points per question are intended to reflect approximate times they should take, at about 1 point per minute.
- For 'select all that apply' questions worth N points, you get 1/N of the points for each RIGHT answer that you check, plus 1/N of the points for each WRONG answer that you correctly leave unchecked. That is, equal weight is given to deciding whether each choice is part of the right answer or not.

Good skill!

1. [1 point] Which of the following is NOT true about TDD?

    a. Views cannot be tested with TDD
    b. You write a test case before writing the code to be tested
    c. TDD can help make your code more tested, modular, and readable
    d. You can use TDD in conjunction with BDD

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2. [1 point] RSpec's `stub` method can be used to override a method call on:

    a. An instance only
    b. A class only
    c. An instance or a class only
    d. Any Ruby object

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3. [1 point] Which of the following statements are true regarding mocks in RSpec:

    i. Mocks are used to isolate tests from the database.

    ii. Model mocks automatically have access to all existing methods of the model.

    iii. Mocks can be created with default attribute values.

    a. (i) and (iii) only
    b. (i) only
    c. (i) and (ii) only
    d. (i), (ii), and (iii)
    e. (ii) and (iii) only

4. [1 point] Select ALL that apply: A C0-coverage tool reports 100% coverage for the following code, where certain lines are labeled for convenience:

```
      def foo(x)
1       baz(x)
        if x
2         bar(x)
        else
3         nil
        end
      end
      def baz(x)
4       puts x
      end
```

Which lines of the code were *definitely* exercised by the test suite?

- ☐ line 2
- ☐ line 1
- ☐ line 3
- ☐ line 4

5. [1 point] Which of the following guarantees that you have *exhaustively* unit-tested a piece of code?

   a. 100% C0 coverage
   b. 100% C1 coverage
   c. 100% C2 coverage
   d. None of the above

6. [1 point] Some databases disallow table rows whose primary key (ID) is zero. A unit test for an ActiveRecord model that tries check this property by changing a model's ID to zero would be a:

   a. mutation test
   b. glass-box test
   c. black-box test
   d. fuzz test

7. [2 points] Select ALL that apply: Which statements are TRUE regarding implicit requirements?

- ☐ They may result from technical constraints on how explicit requirements are addressed
- ☐ They may lead to additional complexity and new user stories that must be accommodated in the development plan
- ☐ Testing them should usually be lower priority than testing the explicit requirements
- ☐ They may be derived as a consequence of meeting explicit requirements
- ☐ They may be specified by the customer

8. [1 point] Validations and controller filters are made possible by using which Ruby language features:

(i) Metaprogramming

(ii) Closures

(iii) Higher-order functions

    a. (i) only
    b. (i) and (iii) only
    c. (i), (ii) and (iii)
    d. (ii) and (iii) only
    e. (i) and (ii) only

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9. [2 points] Select ALL that apply: Which of the following statements are true about controller filters?

☐ Controller filters can be run before, after, or 'around' the actions to which they apply

☐ Instance variables set within a controller filter are available to the controller action method body and the view

☐ Controller filters defined in ApplicationController are applied to every controller

☐ You can redirect to a different controller action before reaching the current controller action's body

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10. [2 points] We're creating a new app that allows students to schedule appointments with faculty at specific times and days. Which BEST describes how to model appointments between faculty and students:

    a. Faculty belongs-to Appointment; Student belongs-to Appointment
    b. Faculty has-many Appointments, through Students
    c. Faculty has-many appointments; Student has-many appointments
    d. Faculty has-and-belongs-to-many Students; Student has-and-belongs-to-many Faculty

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11. [1 point] Suppose we have a Movies table with 3 rows, a Reviews table with 5 rows, a Moviegoers table with 4 rows, and the following relationships:
```
movie has_many :reviews
moviegoer has_many :reviews
moviegoer has_many :movies, :through => :reviews
```
When we execute `m = moviegoer.movies` for some `moviegoer`, the Cartesian product representing the query will have:

    a. 60 rows
    b. 12 rows
    c. Depends on the specific foreign key values relating moviegoers, reviews and movies
    d. 15 rows
    e. 3 rows

12. [3 points] Select ALL that apply: Suppose we want to add a Theaters model to Rotten Potatoes, with the simplifying assumption that each Theater is showing only one movie at any given time, but a given Movie could be showing at many Theaters. Which steps are necessary so that `movie.theaters` will return a list of all the theaters at which a movie is showing:

☐ The `theaters` table will need a foreign key `movie_id`.

☐ The `movies` table will need a foreign key `theater_id`.

☐ We must add `has_many :theaters` to the `Movie` model.

☐ We must add `belongs_to :movie` to the `Theater` model.

☐ We must add `has_many :movies` to the `Theater` model.

☐ We must add `belongs_to :theater` to the `Movie` model.

13. [3 points] Assuming that a `Movie` has many `Reviews`, and movie ID 5 exists, what table(s) will be updated as a result of the following code?

```
m = Movie.find(5)
m.reviews << Review.new(:potatoes => 5)
m.save!
```

   a. Only the `movies` table
   b. Only the `reviews` table
   c. Both the `movies` table and the `reviews` table
   d. You cannot tell from the code given

14. [1 point] True or False: A Ruby wrapper library such as the ruby-tmdb gem is a necessary component for Rails apps to call a service with a RESTful API.

        True   False

15. [1 point] The term "authentication" refers to:

   a. proving who you are
   b. proving you're allowed to do something
   c. proving you're allowed to do something BECAUSE of who you are
   d. proving your identity via a third-party provider

16. [1 point] Which is true about third-party authentication between a requester and a provider?

   a. If your credentials on the requester are compromised, your credentials on the provider are also compromised
   b. Access can be time-limited to expire on a pre-set date
   c. If the provider revokes access, the requester no longer has any of your info
   d. Once successfully completed, the requester can do anything you can do on the provider

17. [1 point] Suppose we add login functionality to RottenPotatoes so that once Alice gets past a login screen, she is redirected to the Index action (list of movies) with a welcome message. Which would be the best place to store the welcome message once login is complete?

    a. params[]
    b. session[]
    c. flash[]

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18. [1 point] Continuing the previous question, what is the best place to remember the fact that Alice has logged in?

    a. params[]
    b. session[]
    c. flash[]