NWCG Introduction to Wildland Fire Behavior Calculations (S-390) Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

• Practice answering questions under realistic conditions,
• Improve accuracy and speed,
• Review explanations to strengthen weak areas, and
• Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. **How many types of drought are listed in the material?**
   A. Three
   B. Four
   C. Two
   D. Five

2. **Which items are included in surface observation data?**
   A. Temperature, Relative Humidity, Wind Speed/Direction, Dew Point
   B. Temperature, Pressure, Precipitation, Cloud Cover
   C. Humidity, Wind Speed, Visibility, Precipitation
   D. Wind Speed, Temperature, Precipitation, Dew Point

3. **Which of the following is NOT a factor that affects forecast accuracy?**
   A. Cloud cover
   B. Forecast time range
   C. Size of forecast area
   D. Variable terrain

4. **Herbaceous Fuel Moisture refers to which part of a plant?**
   A. Live portions of a plant
   B. Dead twigs
   C. Bark depth
   D. Soil moisture

5. **Unstable Lapse Rate is defined as a lapse rate greater than how many degrees?**
   A. Greater than 5.5 degrees
   B. Less than 5.5 degrees
   C. Exactly 5.5 degrees
   D. Depends on humidity

6. Time Lag 1000 hour fuels are typically within which diameter range?

   A. 3-8 inches

   B. 1-3 inches

   C. Less than 1/4 inch

   D. 1/4-1 inch

7. Grass type fuels include how many fuel models?

   A. 3 Fuel Models

   B. 2 Fuel Models

   C. 4 Fuel Models

   D. 5 Fuel Models

8. Which of the following is NOT a listed fuel model system?

   A. NFDRS

   B. CFDRS

   C. USFBPS

   D. FARS

9. Which drought type is most rapidly affected by changes in precipitation?

   A. Meteorological drought

   B. Hydrological drought

   C. Agricultural drought

   D. Economic drought

10. Which pressure condition is associated with stable atmospheric conditions?

   A. High Pressure

   B. Low Pressure

   C. Ambient Pressure

   D. Rising Pressure

Answers

1. A
2. A
3. A
4. A
5. A
6. A
7. A
8. D
9. A
10. A

SAMPLE

Explanations

1. How many types of drought are listed in the material?

A. Three

B. Four

C. Two

D. Five

Drought types in this material are categorized into three forms that directly affect fuel moisture and fire behavior: meteorological drought, agricultural drought, and hydrological drought. Meteorological drought covers extended periods of below-average precipitation, which lowers atmospheric moisture and dries fuels. Agricultural drought focuses on soil moisture deficits that impact vegetation growth and fuel production, altering both live and dead fuels. Hydrological drought involves reduced water resources such as streamflow and groundwater, influencing landscape moisture and the availability of moist fuels across areas. The material lists three types, and does not include socioeconomic drought in this scope, which is why the total is three rather than four or five even though other sources may discuss additional types.

2. Which items are included in surface observation data?

A. Temperature, Relative Humidity, Wind Speed/Direction, Dew Point

B. Temperature, Pressure, Precipitation, Cloud Cover

C. Humidity, Wind Speed, Visibility, Precipitation

D. Wind Speed, Temperature, Precipitation, Dew Point

Surface observation data focuses on the weather elements measured at the surface that directly affect fire behavior: temperature, humidity, wind, and moisture indicators. Temperature influences fuel drying and ignition potential; humidity shows how moist the air is and how quickly fuels may lose moisture, with relative humidity and dew point providing a clear picture of atmospheric moisture. Wind speed and direction drive how fast and where heat and embers move, shaping fire spread and direction. Dew point specifically adds a practical moisture reading that helps gauge how wet or dry fuels are likely to be. The combination that includes Temperature, Relative Humidity, Wind Speed/Direction, and Dew Point matches the standard surface data used for rapid fire behavior assessments. Other options bring in elements like pressure, cloud cover, visibility, or precipitation, which aren't part of this core surface observation data set in this context, or omit a key humidity measure, making them less aligned with what surface observations emphasize for these calculations.

3. Which of the following is NOT a factor that affects forecast accuracy?

A. Cloud cover

B. Forecast time range

C. Size of forecast area

D. Variable terrain

Forecast accuracy in fire weather predictions is mainly influenced by how far ahead you're predicting, how large an area you're forecasting, and how complex the terrain is. Each of these factors adds uncertainty: predicting weather farther in the future gives more opportunities for change, a larger forecast area contains more spatial variability, and variable terrain creates microclimates and localized wind/fire behavior differences that are harder to predict consistently. Cloud cover, while it's a forecast element you report, doesn't by itself determine the overall reliability of the forecast in this context. The predictability issues come from time horizon, area size, and terrain complexity, not specifically from whether clouds will be present.

4. Herbaceous Fuel Moisture refers to which part of a plant?

A. Live portions of a plant

B. Dead twigs

C. Bark depth

D. Soil moisture

Herbaceous fuel moisture refers to the water content in living, non-woody plant material. So it's about the live portions of a plant—the green leaves and soft, herbaceous stems that are still alive. This is different from dead fuels like dead twigs, which are nonliving material, and from woody characteristics like bark depth. Soil moisture is a separate factor related to the environment, not the plant's own herbaceous tissue moisture.

5. Unstable Lapse Rate is defined as a lapse rate greater than how many degrees?

A. Greater than 5.5 degrees

B. Less than 5.5 degrees

C. Exactly 5.5 degrees

D. Depends on humidity

Understanding atmospheric stability starts with how temperature changes with height—the lapse rate. If the air cools with height more rapidly than the surrounding air, rising parcels stay warmer than their surroundings and keep rising, creating instability. The threshold used here is about the dry adiabatic lapse rate, which is roughly 5.5°F per 1,000 feet. So, an unstable lapse rate is defined as a lapse rate greater than 5.5°F per 1,000 ft. That's why the correct choice is the one indicating "greater than 5.5 degrees." The other options don't fit because stability is not described by being less than, exactly equal to, or dependent on humidity in this context; exceeding the 5.5°F per 1,000 ft threshold signals instability that affects convection and fire behavior.

6. Time Lag 1000 hour fuels are typically within which diameter range?

A. 3-8 inches

B. 1-3 inches

C. Less than 1/4 inch

D. 1/4-1 inch

Time lag categories group fuels by how quickly they heat and respond to fire, which depends on their size. The 1000-hour fuels are the largest common category and consist of bigger pieces of woody material that take a long time to heat up. This slower heating is due to their larger cross-sectional area and moisture movement through the wood, so they retain heat more slowly and burn more slowly overall. That's why 1000-hour fuels are defined by a diameter range of about 3 to 8 inches. In contrast, smaller diameter ranges correspond to other time-lag groups: finer fuels under 1/4 inch heat very quickly (1-hour), roughly 1/4 to 1 inch (10-hour), and about 1 to 3 inches (100-hour). So the correct range for 1000-hour fuels is 3 to 8 inches.

7. Grass type fuels include how many fuel models?

A. 3 Fuel Models

B. 2 Fuel Models

C. 4 Fuel Models

D. 5 Fuel Models

Grass-type fuels are represented by three different fuel models in the standard set used for wildland fire behavior calculations. This separation accounts for variability in grassy fuels—short, medium-height grasses, and tall grasses or grasses with higher loading—so that rate of spread, flame length, and energy release can be estimated more accurately for grassy landscapes. Having three models allows calculations to reflect differences in height, cover, and curing within grass fields rather than forcing all grass fuels into a single category. Therefore, three fuel models best matches how grass fuels are categorized in this system.

8. Which of the following is NOT a listed fuel model system?

A. NFDRS

B. CFDRS

C. USFBPS

D. FARS

When predicting fire behavior through standardized fuels, the systems that organize and link fuel types to spread and intensity are the NFDRS, the Canadian equivalent CFDRS, and the US Fire Behavior Prediction System. These are all designed to classify fuels into models that feed into spread and rate-of-spread calculations. The Fire and Resource Assessment System, however, serves as a broader data and reporting framework for fire and resource information. It isn't a fuel model system used to predict how fast a fire will spread or how intense it will be.

9. Which drought type is most rapidly affected by changes in precipitation?

A. Meteorological drought

B. Hydrological drought

C. Agricultural drought

D. Economic drought

Meteorological drought responds immediately to precipitation changes because it is defined directly by precipitation deficits. When rainfall is below normal, this drought type appears right away as a signal of precipitation shortfall. Other drought types lag because they depend on how long it takes for water storage (in rivers, lakes, and groundwater) or soil moisture to decline and for those effects to translate into impacts on crops or the economy. Hydrological drought builds as storages dwindle and groundwater levels fall, agricultural drought follows as soils dry and crops experience water stress, and economic drought emerges from the cascading impacts on production and markets. So the quickest change with shifting precipitation is meteorological drought.

10. Which pressure condition is associated with stable atmospheric conditions?

A. High Pressure

B. Low Pressure

C. Ambient Pressure

D. Rising Pressure

High pressure is associated with stable atmospheric conditions because air under a high-pressure system tends to sink and spread out. This subsiding air warms as it compresses, which reduces buoyancy and suppresses vertical motion. With little vertical mixing, the atmosphere becomes stratified and tends to stay clear and calm, illustrating stability. Low pressure, on the other hand, lifts air, promotes cooling and condensation, and leads to convection and more chaotic weather—clear signs of instability. Ambient pressure simply describes the current pressure level and doesn't by itself determine stability, while rising pressure is a change toward stronger high pressure rather than a direct description of the present stability.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://nwcgs390.examzify.com

We wish you the very best on your exam journey. You've got this!