

**Exam Recipe and Outlines
ISA Utility Specialist Exam**

I. Electric Utility Pruning

A. Tree Structure and Growth

1. To know how to differentiate tree growth characteristics
2. To understand tree growth response after each pruning style
 1. To understand what happens when trees are pruned and when they are not pruned
 2. To understand the weights of wood and rope structural strengths

B. Pruning Concepts

1. To know how to properly make cuts and recognize proper and improper pruning
2. To understand the various pruning styles
3. To know when a pruning style should be used as it relates to the proximity of the tree to the conductor
4. To know the proper pruning style as it relates to tree species and growth characteristics
5. To know directional or lateral pruning concepts and why they work

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II. Program Management

A. Purpose (why)

1. To understand the basic concepts of “right tree – right place”
2. To understand the economics of replacement with a compatible tree
3. To be able to recognize a hazard tree as it applies to trees near energized power lines
4. To know the options for managing vegetation

B. Planning (when and where) – (efficiencies)

1. To understand the use of each type of equipment used in vegetation management
2. To know the different methods of herbicide applications, the material used and the advantages and disadvantages of each method
3. To determine which application method should be used under a given condition
4. To understand the basic productivity concepts associated with each treatment
5. To understand the principles of proper tree selection based on site conditions
6. To understand the concepts of utility pruning cycles and the frequency and amount of pruning required

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III. Integrated Vegetation Management

A. Methodology (how)

1. To understand the concepts of integrated vegetation management
2. To know the different methods of mechanical treatments, the equipment use and the advantages and disadvantages of each
3. To be able to distinguish when hand cutting is a viable alternative to other methods
4. To be able to recognize when specialty equipment would be used

B. Basic Knowledge (what)

1. To understand and explain herbicide information such as toxicity and LD 50 ratings
2. To understand preventative measures and emergency spill procedures
3. To understand storage, mixing, and disposal procedures
4. To know how herbicides work and the physiology of tree uptake and translocation of materials
5. To understand the mechanics and techniques of various application methods
6. To understand the potential exposures and risks of mechanical treatments and herbicide application
7. To recognize dangerous overhang
8. To recognize potential fire hazard situations
9. To understand that a tree in poor health could cause an outage

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IV. Electrical Knowledge

A. Hardware Recognition

1. To be able to recognize potential outage situations
2. To be able to identify basic electrical pole hardware
3. To know basic line construction types and their uses and applications
4. To understand the purpose and recognize fuses and cutouts

B. Electrical Theory)

1. To be familiar with electrical systems and how tree limbs create outages
2. To understand the minimum separation (limits of approach) in establishing clearances required for various voltages and configuration
3. To know the specifics of electrical properties such as voltage and configuration
4. To understand conditions that make electrical flow possible through other types of conductors
5. To understand backfeed

C. System Configuration

1. To recognize the difference between transmission and distribution
2. To be able to recognize the different mapping terminology used in circuit maps
3. To be able to read basic line maps
4. To be able to look at outage statistics and the factors that affect them

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V. Customer Relations

A. Public Concerns

1. To be able to identify, prevent, and manage various situations involving landowner complaints and general public concerns
2. To be able to identify characteristics of an able tree
3. To understand when a tree is detrimental to the aesthetic value of an area
4. To understand the relationship between utility, the ratepayer, and the contractor
5. To understand the basic concepts in conflict management and resolution
6. To understand the importance of appearance, demeanor, and first impressions
7. To be able to knowledgeably discuss tree work required
8. To understand and be able to discuss the tree/wire relationship

B. Utility Industry Concerns

1. To recognize potential fire hazard situations
2. To be able to describe main thrust of OSHA 1910.269, ANZI Z133 and ANZI A300
3. To be able to identify EPA Regulations that impact line clearance
4. To be familiar with requirements of DOT and DNR
5. To be familiar with the basic need for line clearance and how the utility's objectives are a vital part of the quality of service provided to the homeowner/ratepayer

C. Land Management

1. To understand various types of easements
2. To understand the various legal responsibilities of each easement type
3. To understand where to find R/W information and how to research title

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VI. Storm Response

A. Preparedness

1. To be able to identify what conditions are prevalent in emergency storm restoration
2. To understand feedback
3. To be able to prioritize restoration work
4. To be able to recognize a hazard tree as it applies to trees near energized power lines

B. Response

1. To recognize hazardous conditions in storm situations
2. To be able to evaluate site conditions during storm restoration
3. To identify necessary tree work to restore service following a storm