INSTRUCTOR'S USE ONLY
ANSWERS FOR
S-235 Ignition Operations - EXAM

Name: _____ Date: _____

There is a 45 minute time limit on this exam. Mark: _____ (pass 70%)

(2) 1. What must all ignition operations have before ignition begins?
Ignition Plan

(5) 2. Identify five topics that must be discussed in every ignition crew briefing

- *The Chain of Command*
- *Lookouts, Communications, Escape Routes and Safety Zones*
- *Known fireline hazards.*
- *Safe work procedures*
- *Current and expected fire behaviour and weather*
- *Current fire activities and progress*
- *Ignition strategies, sequence*
- *Tasks the crew will be accomplishing*
- *Individual work assignments*
- *Prescribed burn plan or incident action plan*
- *Problems or concerns*

(5) 3. List five common ignition devices

- *Fusees*
- *Hand-Held Drip Torch*
- *Matches/Lighters*
- *Terra-Torch*
- *Propane Torch*
- *Helitorch*
- *Plastic Sphere Dispenser (AIDS)*

(12)

(3) 6. List three items of personal protective equipment specific to mixing operations when mixing helitorch fuel:

- Organic respirator
- Chemical resistant apron
- Chemical resistant gloves

(6) 7. Name the three types of ignition operations and describe the method of attach they are most commonly used with

- *Burn-Off- used with parallel or direct attack to eliminate islands of green fuel within the fire perimeter*
- *Burn-Out- used with parallel attack to eliminate green fuels between control line and the fire perimeter to secure control line*
- *Backfire- set inside the control line; uses the in-draft of high intensity fires in conjunction with indirect attack*

(3) 8. Name the three types of fire spread

- *Head fire*
- *Backing fire*
- *Flanking fire*

(10) 9. Name the 8 ignition patterns, briefly describe any two

- *Head Firing*
- *Backing Fire*
- *Flank Firing*
- *Chevron Firing*
- *Circular Firing*
- *Concentric or Centre Firing*
- *Ring Firing*
- *Dot Firing*

(22)

(6) 10. Define the following:

- Ignition Pattern or Ignition Technique:

The manner in which a prescribed fire, backfire, or burnout is set, determined by weather, fuel, ignition system, topographic and other factors having an influence on fire behaviour and the objective of the burn

- Ignition Method:

The means by which a prescribed fire, backfire or burn-out is ignited; such as handheld drip torch, helitorch or terra torch.

- Ignition Sequence:

The overall progression of ignition events to apply fire to a given area

(5) 11. Name the five hazards common to ignition techniques

- *Changes in wind speed or direction*
- *Spotting across the control line*
- *Possible entrapment of fire personnel due to the following:*
  - *Incorrect timing*
  - *Lack of visual contact*
  - *Poor communications*
  - *Incorrectly staggering strips or dots*
- *Rolling material on slopes*
- *Uncontrolled fire intensity after ignition*

(2) 12. In preparing for a firing operation, one consideration is that firing must not:

- *Jeopardize the safety of personnel or equipment*
- *Adversely affect the suppression action on adjacent divisions*

(13)

(5) 13. Name the five problems that may seriously affect an ignition operation

- *Adverse line location*
- *Topographic features*
- *Weather changes*
- *Structures and improvements within the area may require additional:*
- *Additional problems to consider*

(3) 14. Describe three general safe work practices used for ignition operations

- *Always maintain awareness of your Look Outs, Communications and Escape Routes and Safety Zones*
- *Always use a Lookout for firing operations*
- *Always fire from an Anchor Point*
- *Follow the chain of command*
- *Maintain span of control at all times*
- *Minimum 500 metre separation between ground crews and aerial ignition operation*
- *Appropriate PPE for all personnel; specialized PPE is required for mixing crews*
- *Ensure all excess fuels and combustibles are stored a minimum of 150 metres away from the ignition area up wind and down hill*
- *Appropriate spill berms should be used for storing and mixing ignition fuel. Emergency spill kits and procedures should be in place*
- *Do not open or fill fuel containers near hot embers, sparks, or while smoking, as the tank may contain dangerous vapour*
- *Ensure all hazardous materials are labeled to WHMIS standards and that all Material Safety Data Sheets are readily available*
- *When handling and transporting Dangerous Goods, ensure that they are appropriately packaged, labeled, placards are in place, and drivers have the paperwork.*

(8)

(4) 15. Name the four weather inputs used in the CFFDRS FWI system

Wind speed, relative humidity, temperature and precipitation

(1) 16. Who has overall responsibility of ignition operations
Incident Commander/ Prescribed Fire Burn Boss

(3) 17. Name the three topographic features that can seriously affect firing operations

- *Excessive slopes*
- *Saddles*
- *Narrow canyon bottoms*

(4) 18. Name the four weather changes that can seriously affect firing operations

- *Wind shifts across the control line*
- *Increased wind speed*
- *Thunderstorms with downdrafts*
- *Humidity changes*

(3) 19. Name three of the 'additional problems' that can seriously affect firing Operations

- *Poor coordination or communication*
- *Equipment failures*
- *Lack of suitable and/or sufficient resources*

(15)

END OF EXAM
Total 70 marks