# Knowledge Test Marking Rubric

The results of the test will be based on the official pass criteria of each question.

**1)**

Question: Name the three stages of combustion and briefly describe what happens at each stage.

Answer(s):

* *Fine* - Lose moisture quickly and dry out easily and daily in warm dry conditions. They ignite easily and carry a fire rapidly.
* *Medium* - Take longer to dry out. Drying out may take a week. Provide intense heat when dry and on fire. Require a mixture of fine fuels to ignite. They will produce hot fires.
* *Heavy* - Have to evaporate the moisture before they can burn. It may take a long drought to dry out these fuels. They are difficult to ignite and once on fire can burn for a long time. Once ignited they will produce high intensity fires.

Pass criteria: Explanation must include at least 2 valid points about effect of each fuel size on fire behaviour

Max points: 6 (1 for each valid point).

**2)**

Question: Look at the diagram of a fire and label at least 4 of its parts.

Answers:

1. Left Flank
2. Base
3. Area of Origin
4. Right Flank
5. Spot Fire
6. Bay
7. Head
8. Finger

Pass criteria: Must show at least 4 parts correctly named and located

Max points: 4.

**3)**

Question: Which part of the fire should be protected as much as possible?

Answer: The origin.

Pass criteria: Must be correct as stated.

Max points: 1.

**4)**

Question: Where is the fire most likely to be very intense and too dangerous for a direct ground attack?

Answer: The head.

Pass criteria: Must be correct as stated. Give a point for alternative answers if the reasoning is clear.

Max points: 1.

5)

Question: Name the three stages of combustion and briefly describe what happens at each stage.

Answer(s):

* Preheating - Unburnt fuels heated and flammable gases are released.
* Gaseous - The escaping gasses are ignited and heat and light is produced.
* Charcoal - The fuel no longer gives off enough gas to support flame and the fuel smoulders.

Pass criteria: Must correctly name each stage and give a similar description.

Max points: 9 (1 for each stage, 1 for mentioning gasses, 1 for mentioning heat/flame/light).

6)

Question: Give an example, relevant to vegetation fires, of the four methods of heat transfer.

Answer(s):

* *ember transport* - Hot ashes carried by the wind
* *radiation* - Heat travelling in a straight line and warming unburnt vegetation
* *convection* - Hot air rising and heating crown fuels
* *conduction* - Heat travelling along a fence wire and igniting a fence post

Pass criteria: Must give at least one valid example for each method

Max points: 4 (1 per valid example).

7)

Question: For each of the three vegetation fire spread patterns below, describe the conditions that could cause it.

Answer(s):

* *Image 1* - This is typical of no wind and flat ground with an even fuel distribution.
* *Image 2* - In moderate wind or up a moderate slope.
* *Image 3* - Strong winds and a steep slope will cause the fire to take on an elliptical shape.

Pass criteria: Must give same or similar answers (Interpretation: single point for mentioning wind or slope, can give a point for mentioning even fuel distribution in first image).

Max points: 6

Maximum number of points: 31