

**PERFORMANCE EXAM CHECKLIST**

**SAMPLING ASPHALT MIXTURES  
FOP FOR AASHTO R 97**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

**Record the symbols “P” for passing or “F” for failing on each step of the checklist.**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
<b>Attached Sampling Device</b>		
1. Container coated or preheated or both?	_____	_____
2. Sampling device passed through stream twice perpendicular to material?	_____	_____
3. Sampling device not over filled?	_____	_____
<b>Conveyor Belt</b>		
4. Belt stopped?	_____	_____
5. Sampling template set on belt, avoiding intrusion of adjacent material?	_____	_____
6. Sample, including all fines, scooped off?	_____	_____
<b>Haul Units</b>		
7. Unit divided into four quadrants?	_____	_____
8. Increment obtained from each quadrant, 0.3 m (1ft.) below surface?	_____	_____
9. Increments combined to make up the sample?	_____	_____
<b>Paver Auger</b>		
10. Shovel blade flat on the surface to be paved?	_____	_____
11. Shovel lifted vertically after it is filled?	_____	_____
<b>Windrow</b>		
12. Beginning and end avoided?	_____	_____
13. Equal increments obtained from three sections?	_____	_____
14. Approximately 0.3 m (1 ft) removed from top of each section?	_____	_____
15. Underlying material excluded?	_____	_____
<b>Roadway Before Compaction (Method 1)</b>		
16. Plate placed well in front of paver?	_____	_____
17. Wire pulled to locate plate corner?	_____	_____

**OVER**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
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18. Cookie cutter (if used) placed on asphalt and pushed through to plate?	_____	_____
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19. All material removed from inside the cutter?	_____	_____
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**Roadway Before Compaction (Method 2)**

20. Cookie cutter placed on asphalt and pushed through to underlying material?	_____	_____
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21. All material removed from inside the cutter?	_____	_____
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**Stockpile Method 1– (Loader sampling)**

22. Loader operator directed to enter the stockpile with the bucket at least 0.3 m (1 ft) above ground level without contaminating the stockpile?	_____	_____
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23. The loader obtained a full loader bucket of the material with the bucket tilted back and up?	_____	_____
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24. A small sampling pile formed at the base of the stockpile by gently rolling the material out of the bucket with the bucket just high enough to permit free-flow of the material?	_____	_____
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25. A flat surface created by the loader back dragging the small pile?	_____	_____
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26. Increment sampled from three locations at least 0.3 m (1 ft) from the edge by fully inserting the shovel into the flat pile as vertically as possible, care taken to exclude the underlying material?	_____	_____
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**Stockpile Method 2 (Stockpile Face)**

27. Created horizontal surfaces with vertical faces?	_____	_____
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28. Sample obtained from the horizontal face as close as possible to the vertical face?	_____	_____
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29. At least one increment taken from each of the top, middle, and bottom thirds of the stockpile?	_____	_____
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**General**

30. Sample placed in appropriate container?	_____	_____
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31. Sample size meets agency requirements?	_____	_____
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32. Sample identified as required?	_____	_____
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Comments:      First attempt:    Pass\_\_\_\_\_Fail\_\_\_\_\_      Second attempt:    Pass\_\_\_\_\_Fail\_\_\_\_\_

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**Examiner Signature** \_\_\_\_\_

**WAQTC #:** \_\_\_\_\_

**PERFORMANCE EXAM CHECKLIST**

**REDUCING SAMPLES OF ASPHALT MIXTURES TO TESTING SIZE  
FOP FOR AASHTO R 47**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
1. Sample made soft enough to separate easily without exceeding temperature limits?	_____	_____
2. Splitting apparatus and tools, if preheated, not exceeding maximum mixing temperature from the JMF?	_____	_____
<b>Mechanical Splitter Type B (Riffle) Method</b>		
1. Splitter cleaned, and surfaces coated with release agent?	_____	_____
2. Two empty receptacles placed under splitter?	_____	_____
3. Sample placed in hopper or straight edged pan without loss of material and uniformly distributed from side to side?	_____	_____
4. Material discharged across chute assembly at controlled rate allowing free flow of asphalt mixture through chutes?	_____	_____
5. Splitter surfaces cleaned of all retained asphalt mixture allowing it to fall into appropriate receptacles?	_____	_____
6. Further reduction with the riffle splitter:		
a. Material from one receptacle discharged across chute assembly at controlled rate, allowing free flow of asphalt mixture through chutes?	_____	_____
b. Splitting process continued until appropriate sample mass obtained, with splitter surfaces cleaned of all retained asphalt mixture after every split?	_____	_____
7. Remaining unused asphalt mixture stored in suitable container, properly labeled?	_____	_____

**OVER**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
<b>Quartering Method</b>		
1. Sample placed in a conical pile on a hard, non-stick, heat-resistant splitting surface such as metal or sheeting?	_____	_____
2. Sample mixed by turning the entire sample over a minimum of 4 times?	_____	_____
3. Conical pile formed and then flattened uniformly to diameter equal to about 4 to 8 times thickness?	_____	_____
4. Sample divided into 4 equal quarters either with a metal quartering template or straightedges such as drywall taping knives?	_____	_____
5. Quartering:		
a. Two diagonally opposite quarters removed and placed in a container to be retained?	_____	_____
b. Two other diagonally opposite quarters combined?	_____	_____
c. Process continued, if necessary, until appropriate sample mass has been achieved?	_____	_____
6. Sectoring:		
a. Using two straightedges or a quartering device and one straightedge, sector obtained from one of the quarters from the center point to the outer edge of the quarter?	_____	_____
b. Equal sector obtained taken from the diagonally opposite quarter?	_____	_____
7. Increments combined to produce appropriate sample mass?	_____	_____
8. Remaining unused asphalt mixture stored in suitable container, properly labeled?	_____	_____

**OVER**

**Procedure Element**

**Trial 1    Trial 2**

**Incremental Method**

- |  |       |       |
|--|-------|-------|
| 1. Sample placed on hard, non-stick, heat-resistant splitting surface covered with sheeting?           | _____ | _____ |
| 2. Sample mixed by turning the entire sample over a minimum of 4 times?                                | _____ | _____ |
| 3. Conical pile formed?  | _____ | _____ |
| 4. Asphalt mixture rolled into loaf and then flattened?  | _____ | _____ |
| 5. The first quarter of the loaf removed by slicing off or dropping off edge of counter and set aside? | _____ | _____ |
| 6. Proper sample mass sliced off or dropped off edge of counter into sample container?                 | _____ | _____ |
| 7. Process continued until all samples are obtained or final quarter is remaining?                     | _____ | _____ |
| 8. All remaining unused asphalt mixture stored in suitable container, properly labeled?                | _____ | _____ |

Comments:      First attempt:    Pass\_\_\_\_Fail\_\_\_\_      Second attempt:    Pass\_\_\_\_Fail\_\_\_\_

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**Examiner Signature** \_\_\_\_\_ **WAQTC #:** \_\_\_\_\_



**PERFORMANCE EXAM CHECKLIST**

**MOISTURE CONTENT OF ASPHALT MIXTURES BY OVEN METHOD  
FOP FOR AASHTO T 329**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Mass of clean dry container including release media determined to 0.1 g?	_____	_____
2. Representative sample obtained; 1000 g minimum?	_____	_____
3. Initial temperature taken and recorded?	_____	_____
4. Mass of sample determined to the nearest 0.1 g?	_____	_____
5. Sample placed in drying oven for 90 ±5 minutes?	_____	_____
6. Sample dried at a temperature not to exceed the JMF (if known) mixing temp or 163 ±14°C (325 ±25°F)?	_____	_____
7. Constant mass checked at 30 ±5 minute intervals and reached?	_____	_____
8. Sample and container cooled to ±9°C (15°F) of the initial temperature before final dry mass determined to 0.1 g?	_____	_____
9. Calculation of moisture content performed correctly to 0.01 percent?	_____	_____

$$Moisture\ Content = \frac{M_i - M_f}{M_f} \times 100$$

Comments: First attempt: Pass \_\_\_\_\_ Fail \_\_\_\_\_ Second attempt: Pass \_\_\_\_\_ Fail \_\_\_\_\_

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Examiner Signature \_\_\_\_\_ WAQTC #: \_\_\_\_\_





**PERFORMANCE EXAM CHECKLIST**

**DETERMINING THE ASPHALT BINDER CONTENT OF ASPHALT MIXTURES BY THE IGNITION METHOD  
FOP FOR AASHTO T 308**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

**Record the symbols “P” for passing or “F” for failing on each step of the checklist.**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
1. Oven at correct temperature $538 \pm 5^{\circ}\text{C}$ ( $1000 \pm 9^{\circ}\text{F}$ ) or correction factor temperature?	_____	_____
Or: for IR ovens, correct burn profile applied?	_____	_____
2. Sample reduced to correct size?	_____	_____
3. Asphalt mixture sample or companion moisture sample taken and dried per FOP for AASHTO T 329?	_____	_____
4. Mass of sample basket assembly recorded to 0.1 g?	_____	_____
5. With pan below basket assembly, sample evenly distributed in basket assembly keeping material away from the edges?	_____	_____
6. Mass of sample basket and sample recorded to 0.1 g?	_____	_____
7. Sample mass conforms to the required mass?	_____	_____
8. Method A		
a. Initial mass entered into furnace controller?	_____	_____
b. Internal scale reading zero?	_____	_____
c. Sample correctly placed into furnace?	_____	_____
d. Test continued until stable indicator signals?	_____	_____
e. Uncorrected asphalt binder content obtained on printed ticket?	_____	_____
f. Sample cooled to room temperature?	_____	_____
g. Sample mass determined to nearest 0.1 g.?	_____	_____

**OVER**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
9. Method B		
a. Sample correctly placed into furnace?	_____	_____
b. Sample burned for 45 min or time determined by correction process?	_____	_____
c. Sample cooled to room temperature?	_____	_____
d. Sample burned to constant mass?	_____	_____
e. Sample cooled to room temperature?		
f. Sample mass determined to nearest 0.1 g?	_____	_____
g. Uncorrected asphalt binder content calculated correctly and recorded?	_____	_____
10. Asphalt binder content corrected for Correction Factor if needed?	_____	_____
11. Asphalt binder content corrected for moisture per the FOP for AASHTO T 329 if needed?	_____	_____
12. Corrected asphalt binder content recorded?	_____	_____
13. Contents of the basket(s) carefully emptied into a pan?	_____	_____

Comments:      First attempt:    Pass\_\_\_\_\_Fail\_\_\_\_\_      Second attempt: Pass\_\_\_\_\_Fail\_\_\_\_\_

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**PERFORMANCE EXAM CHECKLIST**

**THEORETICAL MAXIMUM SPECIFIC GRAVITY ( $G_{mm}$ ) AND DENSITY OF ASPHALT MIXTURES  
FOP FOR AASHTO T 209**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Sample reduced to correct size?	_____	_____
2. Particles carefully separated insuring that aggregate is not fractured?	_____	_____
3. After separation, fine aggregate particles not larger than 6.3 mm (1/4 in.)?	_____	_____
4. Sample at room temperature?	_____	_____
5. Standardized container (bowl or pycnometer / volumetric flask)?	_____	_____
6. Mass of container determined to 0.1 g?	_____	_____
7. Mass of sample and container determined to 0.1 g?	_____	_____
8. Mass of sample calculated and conforms to required size?	_____	_____
9. Water at approximately 25°C (77°F) added to cover sample?	_____	_____
10. O-ring wet or petroleum gel used?	_____	_____
11. Entrapped air removed using partial vacuum of 4.0 ±0.6 kPa (30 ±5 mm Hg) residual pressure for 15 ±1 min?	_____	_____
12. Container and sample agitated continuously by mechanical device or manually by vigorous shaking at intervals of about 2 minutes?	_____	_____
13. Vacuum released to atmospheric pressure in 10 to 15 seconds if not auto controlled?	_____	_____
14. Vacuum pump turned off?	_____	_____
15. Bowl determination:		
a. Water bath filled to the overflow level?	_____	_____
b. Balance tared?	_____	_____
c. Bowl and sample suspended in water at 25 ±1°C (77 ±2°F) for 10 ±1 minute?	_____	_____
d. Suspension apparatus submerged?	_____	_____
e. Submerged weight of bowl and sample determined to 0.1 g?	_____	_____

**OVER**

**Procedure Element                  Trial 1 Trial 2**

- 16. Pycnometer / Volumetric Flask determination:
  - a. Pycnometer / volumetric flask filled with water without reintroducing air into the sample? \_\_\_\_\_
  - b. Contents stabilized at  $25 \pm 1^{\circ}\text{C}$  ( $77 \pm 2^{\circ}\text{F}$ ) \_\_\_\_\_
  - c. Pycnometer / volumetric flask completely filled with water that is  $25 \pm 1^{\circ}\text{C}$  ( $77 \pm 2^{\circ}\text{F}$ )? \_\_\_\_\_
  - d. Mass of filled pycnometer / volumetric flask and cover determined to 0.1 g, 10  $\pm$  1 min. after removal of entrapped air completed? \_\_\_\_\_
- 17.  $G_{mm}$  calculated correctly and reported to 0.001? \_\_\_\_\_
- 18. Density calculated correctly and reported to  $1 \text{ kg/m}^3$  ( $0.1 \text{ lb/ft}^3$ )? \_\_\_\_\_

Comments:      First attempt:    Pass \_\_\_\_\_ Fail \_\_\_\_\_      Second attempt:    Pass \_\_\_\_\_ Fail \_\_\_\_\_

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Examiner Signature \_\_\_\_\_ WAQTC #: \_\_\_\_\_

**PERFORMANCE EXAM CHECKLIST**

**BULK SPECIFIC GRAVITY OF COMPACTED ASPHALT MIXTURES USING SATURATED SURFACE-DRY SPECIMENS FOP FOR AASHTO T 166**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

**Record the symbols “P” for passing or “F” for failing on each step of the checklist.**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
<b>Method A:</b>		
1. Mass of dry sample determined.		
a. Sample dried to constant mass if required?	_____	_____
b. Cooled in air to 25 ±5°C (77 ±9°F)?	_____	_____
c. Dry mass determined to 0.1g?	_____	_____
2. Water at the overflow?	_____	_____
3. Balance zeroed?	_____	_____
4. Immersed weight determined.		
a. Water at 25 ±1°C (77 ±2°F)?	_____	_____
b. Immersed, shaken, on side, for 4 ±1 min.?	_____	_____
c. Immersed weight determined to 0.1g?	_____	_____
5. Sample rapidly surface dried (within 5 sec.) with a damp towel and saturated surface dry (SSD) mass determined to 0.1 g (entire operation performed within 15 sec.)?	_____	_____
6. G <sub>mb</sub> calculated to the nearest 0.001?	_____	_____
7. Absorption calculated to the nearest 0.01 percent	_____	_____

**OVER**

<b>Procedure Element</b>	<b>Trial 1</b>	<b>Trial 2</b>
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**Method B:**

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|--|-------|-------|
| 1. Specimen dried, cooled, and mass determined as in Method A?   | _____ | _____ |
| 2. Saturated surface-dry (SSD) mass determined to 0.1g.  |       |       |
| a. Immersed at least 10 minutes at 25 ±1°C (77 ±2°F)?  | _____ | _____ |
| b. Sample rapidly dried (within 5 sec.) with damp towel ?  | _____ | _____ |
| c. Specimen mass determined to 0.1 g?  | _____ | _____ |
| d. Any water that seeps from specimen included in mass?  | _____ | _____ |
| 3. Mass of volumeter filled with distilled water at 25 ±1°C (77 ±2°F) determined?  | _____ | _____ |
| 4. SSD specimen placed into volumeter and let stand for 1 minute?  | _____ | _____ |
| 5. Temperature of water brought to 25 ±1°C (77 ±2°F) and volumeter covered, allowing some water to escape through the capillary bore of the tapered lid? | _____ | _____ |
| 6. Volumeter wiped dry, and mass of volumeter and contents determined?   | _____ | _____ |
| 7. G <sub>mb</sub> calculated to the nearest 0.001?  | _____ | _____ |
| 8. Absorption calculated to the nearest 0.01 percent?  | _____ | _____ |

**Method C/A:**

- |   |       |       |
|---|-------|-------|
| 1. Immersed weight determined.  |       |       |
| a. Water at 25 ±1°C (77 ±2°F)?  | _____ | _____ |
| b. Immersed, shaken, on side, for 4 ±1 minutes?   | _____ | _____ |
| c. Immersed weight determined to 0.1 g?   | _____ | _____ |
| 2. Sample rapidly surface dried with damp cloth (within 5 sec.)?                                    | _____ | _____ |
| 3. Saturated surface dry mass determined to 0.1 g?  | _____ | _____ |
| 4. Dry mass determined by:  |       |       |
| a. Heating in oven at 110 ± 5 C (230 ± 9 F)?  | _____ | _____ |
| b. Breaking down to 6.3 mm (¼ in.) particles?   | _____ | _____ |
| c. Drying in oven to constant mass (change less than 0.05 percent in 2 hours of additional drying)? | _____ | _____ |
| d. Cooled in air to 25 ±5°C (77 ±9°F) and mass determined to 0.1 g?                                 | _____ | _____ |
| 5. G <sub>mb</sub> calculated to the nearest 0.001?   | _____ | _____ |
| 6. Absorption calculated to the nearest 0.01?   | _____ | _____ |

**OVER**

**Procedure Element**

**Trial 1 Trial 2**

**Method C/B:**

- 1. Saturated surface-dry (SSD) mass determined to 0.1g.
  - a. Immersed at least 10 minutes at 25 ±1°C (77 ±2°F)? \_\_\_\_\_
  - b. Sample rapidly dried with damp towel (within 5 sec.)? \_\_\_\_\_
  - c. Specimen mass determined to 0.1g? \_\_\_\_\_
  - d. Any water that seeps from specimen included in mass? \_\_\_\_\_
- 2. Mass of volumeter filled with distilled water at 25 ±1°C (77 ±2°F) determined to 0.1 g? \_\_\_\_\_
- 3. SSD specimen placed into volumeter and let stand for 1 minute? \_\_\_\_\_
- 4. Temperature of water brought to 25 ±1°C (77 ±2°F) and volumeter covered, allowing some water to escape through the capillary pore of the tapered lid? \_\_\_\_\_
- 5. Volumeter wiped dry, and mass of volumeter and contents determined to 0.1 g? \_\_\_\_\_
- 6. Dry mass determined by:
  - a. Heating in oven at 110 ± 5 C (230 ± 9 F)? \_\_\_\_\_
  - b. Breaking down to 6.3 mm (¼ in.) particles? \_\_\_\_\_
  - c. Drying in oven to constant mass (change less than 0.05 percent in 2 hours of additional drying)? \_\_\_\_\_
  - d. Cooled in air to 25 ±5°C (77 ±9°F) and mass determined to 0.1 g? \_\_\_\_\_
- 7. G<sub>mb</sub> calculated to the nearest 0.001? \_\_\_\_\_
- 8. Absorption calculated to the nearest 0.01 percent? \_\_\_\_\_

Comments: First attempt: Pass\_\_\_\_\_Fail\_\_\_\_\_ Second attempt: Pass\_\_\_\_\_Fail\_\_\_\_\_

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Examiner Signature \_\_\_\_\_ WAQTC #: \_\_\_\_\_





**PERFORMANCE EXAM CHECKLIST**

**MECHANICAL ANALYSIS OF EXTRACTED AGGREGATE  
FOP FOR AASHTO T 30**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Total dry mass determined to 0.1 g?	_____	_____
2. Dry mass agrees with sample mass after ignition ( $M_f$ ) from AASHTO T 308 within 0.1 percent?	_____	_____
3. Sample placed in container and covered with water?	_____	_____
4. Wetting agent added?	_____	_____
5. Contents of container agitated vigorously?	_____	_____
6. Wash water poured through proper nest of two sieves?	_____	_____
7. Washing continued until wash water is reasonably clear and no wetting agent remaining?	_____	_____
8. Retained material returned to washed sample?	_____	_____
9. Washed material coarser than 75 $\mu\text{m}$ (No. 200) dried to constant mass at $110 \pm 5^\circ\text{C}$ ( $230 \pm 9^\circ\text{F}$ )?	_____	_____
10. Sample cooled to room temperature?	_____	_____
11. Dry mass after washing determined to 0.1 g?	_____	_____
12. Material sieved on specified sieves?	_____	_____
13. Mass of each fraction of aggregate, including minus 75 $\mu\text{m}$ (No. 200), determined and recorded to 0.1 g?	_____	_____
14. Total mass of material after sieving agrees with mass before sieving to within 0.2 percent?	_____	_____
15. Percent passing each sieve determined correctly to the nearest 0.1 percent?	_____	_____
16. Aggregate correction factor applied, if applicable?	_____	_____
17. Percent passing on each sieve reported correctly to the nearest 1 percent and nearest 0.1 percent on the 75 $\mu\text{m}$ (No. 200)?	_____	_____

Comments: First attempt: Pass \_\_\_\_\_ Fail \_\_\_\_\_ Second attempt: Pass \_\_\_\_\_ Fail \_\_\_\_\_

Examiner Signature \_\_\_\_\_ WAQTC #: \_\_\_\_\_

