

International Module

M502 - Thermal Environment

Formative Practical Assessment — Guidance for Tutors

1. Introduction

All candidates must undertake five practical exercises and write them up to the standard of a laboratory notebook or field notes for marking by the course tutor during the course.

These practical exercises are an essential part of the examination process and will be subject to random audit for quality assurance purposes.

2. The Practical Requirements

The practical exercises should be designed by the course tutor(s) to test the basic skill of the candidate in making measurements of conditions for the purpose of assessing the thermal environment. The exercises must, therefore, involve;

- Measurement of Temperature and humidity.
One method from the following along with use of psychrometric charts: -
 - a) The setup and use of a static dry bulb and natural wet bulb thermometer and determination of relative humidity.
 - b) The setup and use of a whirling hygrometer and calculation of relative humidity
 - c) The set up and use an air temperature and relative humidity instrument(s) to give direct readings.
- The setup and use of a Kata thermometer and calculation of non-directional air movement, or alternatively set up and use an omnidirectional air movement instrument to give direct readings.
- The setup of a globe thermometer and use of measurement data from this and the dry bulb/natural wet bulb thermometers to calculate a WBGT value or alternatively a WBGT direct reading instrument may be used.
- The use of monitoring equipment such as those described above, or alternatively real-time monitoring equipment, for assessment of working environments in respect of heat stress and/or thermal comfort. This exercise should include some example environmental data to test the candidate's ability to consider work regimes to reduce the risks to workers. This work should involve the use of tables and charts to interpret results.

Access to reference material and written procedures is allowed during these exercises.

3. Reporting and Marking

The setup and measurement study should be written up to the standards expected for a laboratory note book or field notes report and handed in for assessment at the end of the practical exercise. The candidates must include all readings and calculations so that they can be checked.

Notes for each practical exercise should contain the following elements:

- a) Name of candidate
- b) A brief description of the process or situation
- c) Environment involved
- d) Equipment used
- e) Monitoring information
- f) Calculation of results
- g) Interpretation and recommendation (if appropriate)

The laboratory notebook or field notes reports must be handed in at the completion of the practical session and retrospective reporting will not be allowed. The course provider/tutor will assess each practical note book report and compile a report per candidate as per the attached form.

The tutor must return the practical evaluation report for each candidate to BOHS within 5 days of the course completion.

4. Benchmark Marking Schedule

As the tutor is responsible for designing suitable studies it is not practicable to provide a fully detailed predefined marking schedule. However, the following are examples of what the tutor needs to look for in each case and are provided for guidance.

- a) Setup and reading of a static wet and dry bulb thermometers and calculation of humidity etc.

Visual Check

- Static wet and dry bulb thermometers correctly mounted
- Instrument allowed sufficient time to stabilize

Marking of Write Up

- Calculation from data and use of psychrometric chart

- b) Setup and use of a whirling hygrometer and calculation of relative humidity

Visual Check

- Thermometers correctly mounted in whirling hygrometer
- Wet bulb wick sufficiently wetted
- Instrument whirled for sufficient time

Marking of Write Up

- Calculation from data and use of psychrometric charts

- c) Set and use of direct reading instruments for Temperature and Relative Humidity

Visual Check

- Instruments properly set up and correctly mounted
- Instrument allowed sufficient time to stabilize

Marking of Write Up

- Calculation from data and use of psychrometric chart

- d) Set up and use of a Kata thermometer or alternatively an omnidirectional air movement transducer/Instrument.

Visual Check

- Kata Thermometer /Instrument sensor correctly positioned
- Kata thermometer bulb wiped dry after immersion in hot water
- Cooling period correctly timed,

Marking of Write Up

- Calculation of air speed from calibration chart or instrument

- e) Set up of a globe thermometer or WBGT instrument and determination of a WBGT value

Visual Check

- Globe thermometer correctly positioned
- Instrument allowed sufficient time to stabilize

Marking of Write Up

- Calculation of WBGT using appropriate data for indoor and/or outdoor environmental data

- f) Use of monitoring equipment for assessment of working environments in respect of heat stress and/or thermal comfort.

Visual Check

- Selection of measurement equipment correct
- Positioning and set up of measurement equipment correct

Marking of Write Up

- Calculation of appropriate parameters from data
- Interpretation of data correct

The tutor must return the practical evaluation report for each individual candidate to BOHS within 5 days of the course completion.

International Module M502 – Thermal Environment

Formative Practical Evaluation

Report

Name of Candidate			
Date of Birth		Date of Evaluation	
Evaluation Location			
Course Provider			
	Pass/Fail	Comments	
1) <i>Select one method from a, b or c.</i>			
a) Set up and use of static wet and dry bulb			
b) Set up and use of whirling hygrometer			
c) Set up and use direct reading instrument			
2) Set up and use of Kata thermometer or			
3) Set up Globe thermometer and calculate WBGT or			
4) Use of monitoring equipment to assess heat stress and/or thermal comfort			
Overall Decision			
<i>Name of tutor covering practical evaluation</i>			
<i>Signature of tutor covering practical evaluation</i>			

Please Note: Information entered in the comments column can be given to the candidate for re-sit purposes.

International Module

M502 - Thermal Environment

Formative Practical Assessment — Guidance for Candidates

1. Introduction

Candidates taking the M502 international examination in “Thermal Environment” are required to demonstrate that they have appropriate practical skills in field measurements and assessment. Therefore, all candidates must undertake five practical exercises and write these up to the standard of a laboratory notebook or field notes, for marking by the course tutor during the course. This will be regarded as an essential part of the examination process.

2. The Practical Requirements and Reporting

The practical exercises are designed to test the basic skill of the candidate in assessing thermal environment conditions.

- Measurement of Temperature and humidity.
One method from the following along with use of psychrometric charts: -
 - a) The setup and use of a static dry bulb and natural wet bulb thermometer and determination of relative humidity.
 - b) The setup and use of a whirling hygrometer and calculation of relative humidity.
 - c) The set up and use an air temperature and relative humidity instrument(s) to give direct readings.
- The set up and use of a Kata thermometer and calculation of omni-directional air movement or the use of a direct reading omnidirectional air movement instrument.
- Set up a globe thermometer and calculation of WBGT values or the use of a direct reading WBGT instrument.
- The use of monitoring equipment such as those described above, or alternatively real-time monitoring equipment, for assessment of working environments in respect of heat stress and/or thermal comfort. This exercise should include some example environmental data to test the candidate’s ability to consider work regimes to reduce the risks to workers. This work should involve the use of tables and charts to interpret results.

Access to reference material and written procedures is allowed during these exercises. For each of the above exercises the candidate should:

- a) Select the appropriate equipment for the relevant measurement
- b) Correctly assemble and stabilize the equipment
- c) Read off the relevant values
- d) Correctly calculate the requested parameters
- e) Use direct reading instruments correctly, where provided
- f) Calculate and interpret exposure data and make suitable recommendations
- g) Submit a brief written practical report for the exercise

Each set up and measurement study should be written up to the standards expected for a laboratory notebook or field notes report and handed in for assessment at the end of the practical exercise. The candidates must include all readings and calculations so that they can be checked.

Each practical notebook or field notes report should contain the following elements:

- a) Name of candidate
- b) A brief description of the process or situation
- c) Environment involved
- d) Equipment used
- e) Monitoring information
- f) Calculation of results
- g) Interpretation and recommendation (if appropriate)

Assessment of practical laboratory notebook or field notes reports

The laboratory notebook or field notes reports must be handed in at the completion of the practical session as retrospective reporting will not be allowed. The course provider/tutor will assess each practical notebook report and return the practical evaluation report for each candidate to BOHS.