

Lab 13 - Thermal Stress

Due Nov 22 at 8am	Points 10	Questions 10	Time Limit None
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Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	2,168 minutes	10 out of 10

❗ Correct answers are hidden.

Score for this quiz: **10** out of 10

Submitted Nov 15 at 8:40pm

This attempt took 2,168 minutes.

Question 1

1 / 1 pts

When using a heat stress monitoring station you record the following values:

NWB = 81.8 F

GT = 124.1 F

DB = 101.3 F

What is the US Marine Corps heat stress flag condition?

☐ Red

☐ Yellow

☒ Black

☐ White

☐ Green

Question 2**1 / 1 pts**

What is the estimated heat gain or loss from radiation, in W/m^2 , to/from a clothed worker with normal skin temperature and the globe (radiant) temperature is 121 F?

☐ -63.6☐ 105☐ 114☒ 63.6**Question 3****1 / 1 pts**

What is the estimated heat gain or loss from convection, in W/m^2 , to/from a clothed worker with normal skin temperature if the ambient temperature is 94 F and the wind speed is 2.4 miles per hour?

☐ -8.6☐ -7.8☒ -2.7☐ 2.7☐ 7.8**Question 4****1 / 1 pts**

For a clothed worker that has a skin surface area of 2.25 m^2 , performing moderate whole body work that produces 350 watts of heat, who also has a radiant heat gain of 14.5 W/m^2 , a convective heat loss of -3.33 W/m^2 , and an evaporative heat loss -8.22 W/m^2 , what is his net heat flux in watts?

☒ 357

☐ 794

☐ 2.95

☐ -357

☐ -2.95

☐ -794

Question 5

1 / 1 pts

What is the maximum evaporative heat loss, in W/m^2 , from evaporation from a clothed worker if the water vapor pressure on the skin is 5.6 kPa , the ambient water vapor pressure is 6.4 kPa , and the wind speed is 1.1 m/s ?

☐ 9.3

☐ -9.3

☒ -5.9

☐ 5.9

Question 6

1 / 1 pts

If the air temperature is -22 F and the wind speed is 10 mph, what is the maximum work period per the TLV and how many warming breaks must be provided for that 4-hour shift? Select the two correct choices below

☐ 30 min

☐ Normal Breaks (1)

☒ 55 min

☐ 4 breaks

☒ 3 Breaks

☐ 75 min

☐ Non-emergency work should cease

☐ 5 breaks

☐ 2 Breaks

☐ 40 min

Question 7

1 / 1 pts

An employee working at a metal foundry (indoors) experiences a NWB temperature of 76.5 F, a globe temperature of 121 F, and a dry bulb temperature of 88.8 F. What is the employee's WBGT exposure in F?

☒ 89.9

☐ 32.1

☐ 30.4

☐ 86.6

Question 8**1 / 1 pts**

What is an employee's Heart Rate Reserve (HRR) Capacity if they are 62 years old and have a resting heart rate of 74?

- ☐ 12
- ☐ Not enough information to calculate
- ☒ 84
- ☐ 96

Question 9**1 / 1 pts**

If the WBGT is 26 C, a worker is wearing double layer woven clothing, and is working at a pace that yields 400 watts, has the heat stress TLV been exceeded?

- ☐ Insufficient information to answer
- ☐ No
- ☒ Yes

Question 10**1 / 1 pts**

What is the approximate surface area of the skin of a worker, in m^2 who is 6 ft 5 inches tall and weighs 250 lbs?

- ☐ 0.289

☐ 0.0873

☒ 2.46

☐ 3.473

Quiz Score: **10** out of 10