

M502: THERMAL ENVIRONMENT

OVERNIGHT REVISION QUESTIONS – DAY 1

1. Thermal Stress is usually equated to temperature extremes of hot or cold. What are some of the reasons why hotter than normal conditions can give rise to heat induced illness in more temperate climates?
2. What is heat stress and heat strain? How are they linked?
3. What is homeostasis?
4. What is the core body temperature? The core body temperature is not constant. Why is this the case?
5. How does the human body and humans themselves regulate their body temperature?
6. What are the physiological responses of the body to hot environments?
7. If the sun delivers heat to the top of the earth's atmosphere at an approximate rate of 1370 Wm^{-2} what is it at the earth's surface?
8. Humans generate heat from internal metabolic pathways to maintain their homeothermic status. How is this achieved in the body?
9. A person is performing heavy work with one arm (eg sawing). What is their average metabolic rate?
10. How is acclimatisation of workers in hot environments normally achieved?
11. Describe the symptoms of the most serious of the heat disorders.
12. What are "heat cramps" and "heat syncope" and what are the causes?

13. What are the effects of excessive heat strain due to cold environments?
14. Define mean radiant temperature and how it is measured.
15. What is relative humidity?
16. What are limitations of hot-wire anemometers for measuring air velocity?
17. What factors are normally monitored when using individual physiological monitoring devices?
18. There are a number of different approaches that have been used when developing a monitoring strategy for a workplace. What are these approaches and how do they differ?
19. The American Industrial Hygiene Association (AIHA) provides an example of how a hot thermal environment should be evaluated. What are the key steps in this process?
20. What are the key factors which should be considered when deciding whether a person is suitable for work in hot environments?