



PROGRAM : NATIONAL DIPLOMA
ENVIRONMENTAL HEALTH

MODULE : OCCUPATIONAL HEALTH AND
SAFETY II

CODE : OHS 21-1

DATE : FINAL EXAMINATION THEORY
20 NOVEMBER 2017

DURATION : 3 HOURS

PAGE NUMBERS : 04

TOTAL MARKS : 150

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MODERATOR : MR MBONANE

INSTRUCTIONS TO STUDENT

1. ANSWER ALL QUESTIONS
2. READ YOUR QUESTIONS CAREFULLY. YOU WILL BE PENALIZED IF YOUR ANSWERS ARE NOT PROPERLY STRUCTURED AND NUMBERED.
3. NO CELLPHONES TO BE USED AS CALCULATORS

GOOD LUCK

QUESTION 1

1.1. Workers hardly create hazards, in many cases the hazards are built into the workplace. As an Environmental Health Practitioner at Murray & Roberts Construction Company you are to ensure that work is made safer by modifying the workplace and any unsafe work processes. This means to remove the hazards, not to try to get workers to adapt to unsafe conditions. Comment using design priorities. (10)

1.2. Training and Awareness is core to an effective SHE program and so is the information and data that is received in the SHE Department. You are conducting your training session and the participants are having a hard time understanding the terms below please precisely explain further to aid their understanding?

1.2.1. Safety (2)

1.2.2. Accident (2)

1.2.3. Incident (2)

1.2.4. Near-miss (2)

1.2.5 Injury (2)

(10)

1.3. Identify the hazards associated with the following occupations and identify source of hazard.

1.3.1. Welder (2)

1.3.2. Mechanic (2)

1.3.3 Port worker (2)

1.3.4 Electronics worker (2)

1.3.5. Fitter and Turner (2)

1.3.6. Electrician (2)

1.3.7. Lecturer (2)

1.3.8. Healthcare professionals (2)

1.3.9. Transport drivers (2)

1.3.10. Painter (2)

(20)

[40]

QUESTION 2

- 2.1. Continuous monitoring of thermal environments is essential to determine if working places for example are safe. To do this the Time Weighted Average-Wet Bulb Globe Temperature (TWA-WBGT) index is commonly used. Which other factors influence this index? (6)
- 2.2. Highlight the difference between temperatures vs. thermal energy vs heat? (3)
- 2.3. What is an acceptable thermal environment? (4)
- 2.4. Discuss comfort range. (3)
- 2.5. Discuss different ways by which heat can be exchanged giving examples? (6)
- 2.6. Define heat strain and heat stress, heat, temperature. (4)
- [26]**

QUESTION 3

- 3.1. In accordance to Boyle's law, pressure increases influence volume! @ 2 atmospheres the volume of 1L is reduced by 50%; **elaborate the Boyle law and use it to prove this!**
Mountain climbers to places like Table Mt in South Africa, Mt. Everest in Tanzania;
Construction of high rise buildings; Aerospace activities, flying are often at high altitude!
(5)
- 3.2. Noticeably, the amount of work one can do at increased altitude is reduced, discuss? (15)
- 3.3 Give recommendations to prevent or mitigate the above conditions/high pressure controls.
(7)
- [27]**

QUESTION 4

- 4.1 Define the following terms:
- 4.1.1. Illuminance. (1)
- 4.1.2. Luminance. (1)
- 4.1.3. Contrast. (1)
- 4.1.4. Reflectance. (1)
- 4.1.5. Task lighting. (1)
- (5)

- 4.2. Lighting is very important for visibility in the workplace and that is very important for both the employer & employees, but poor lighting may impact work environment. Explain how bad this poor lighting can impact the work environment. (4)
- 4.3. Define glare and describe the three types of glare. (7)
- 4.4 In choosing sources of light for the new SHE laboratory, the architect is considering just using direct sunlight as a source of light since it shines bright. Would you agree or disagree with her and give reasons for your answer. (4)
[20]

QUESTION 5

- 5.1 Which government organ is responsible for enforcing the Nuclear Safety Act with regards to nuclear installations and nuclear hazard material? (2)
- 5.2 Ionizing radiation cannot be detected by any of the human senses- even an amount which can cause death will not be detected. Biological damage caused is not immediately clinically detectible. This pose a grave situation, provide ways that can be used to prevent radiation. (8)
- 5.3 The electromagnetic spectrum is valuable for our daily living. Explain this statement. (12)
- 5.4 After conducting the risk assessment, the CEO contract the Occupational hygiene company for evaluation of occupational hygiene stressors and thereafter results shows that employees are exposed to noise levels above statutory limits. The CEO again asks you to train exposed employees on Noise Induced Hearing Loss. Discuss the important aspects you will consider in your training? (15)
[37]

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150