

Chapter 2.4 Feedback on self-assessment exercises

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Question 1. The correct answer is C

Ultraviolet radiation (UV) is generated by the electric arc in the welding process. UV radiation can damage the lens of the eye, and many arc welders have the sensation of sand in the eyes ("arc-eye"). Also, the skin can be damaged by burning or by increasing the skin effects of other chemicals.

Infrared radiation (IR) is also produced by the electric arc and other flame cutting equipment and may heat the skin surface and the tissues immediately below the skin surface. The protection from IR (and UV) implies a welder's helmet (or glasses) and protective clothing. In the arc welding process, the eyes are exposed to intense visible light. This exposure can produce adaptation, pupil reflex, and shading of the eyes. The effects could be prevented by the welder's helmet. All types of welding generate noise which depends on the characteristics of the welding process.

Question 2. The correct answer is B

The exposure to ionizing radiation of the interventional cardiologists is one of the highest exposures of this kind among the medical personnel. The organs with increased radio-sensitivity are the bone marrow (and that is why we have to perform the blood count examination (lymphocytes) and the reticulocyte count), the thymus, the spleen, the lymphatic nodes, the gonads, and the crystalline (that is why we perform the ophthalmological examination).

The micronucleus test is used to strengthen the genotoxicity of various compounds (chemical, biological, and physical – such as ionizing radiation). A micronucleus is the erratic (third) nucleus that is formed during the anaphase of mitosis or meiosis. It is not a very specific test, but it is cheap, relative rapid and simple.

Question 3.

His health problem can be related to the workplace since the low temperature has effect at the level of the kidney and the urinary tract, causing a health problem at this level (usually a urinary tract infection which can lead to other complications at the level of the kidney, if not treated correctly).

Question 4.

Because of exposure to UV radiation, proper clothing to cover the skin but which lets the skin breathe, is necessary. On the uncovered surfaces, it is necessary to apply SPF cream. For the eyes, sunglasses with UV block are necessary. He should wear a sun hat to protect his head from the sun. Also, every hour, he should take a 5-10 minutes break, sit in a colder place and he should drink a sufficient quantity of water.

Documentation

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6. HSE: Health and Safety Executive of the United Kingdom <http://www.hse.gov.uk>
7. FIOH : Finnish Institute of Occupational Health
<http://www.ttl.fi/Internet/English/default.htm>
8. INRS: Institut National de Recherche et de Sécurité France <http://www.inrs.fr>
9. IARC : International agency for Research on Cancer <http://www.iarc.fr/>
10. Canadian Centre for Occupational Health and Safety <http://www.ccohs.ca>
11. CDC : Centers of disease control and prevention <http://www.cdc.gov/>
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2. Legislation for work and safety www.securitatea-muncii.ro
3. Romtens Foundation www.romtens.ro
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2. International Labour Office (ILO) : List of occupational diseases(revised 2010)
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