UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

Department of Environmental Health Science

May 2015 Main Examination

Title of paper: FUNDAMENTALS OF INDUSTRIAL HYGIENE

Course code: EHM 428

Time allowed: 2 HOURS

Marks allocation: 100 Marks

Instructions:

1) QUESTION 1 IS COMPULSORY
2) Then answer ANY OTHER THREE (3) questions
3) Each question is weighted 25 marks
4) Write neatly and clearly
5) Begin each question in a separate sheet of paper
6) Numbering within a chosen question should be in a sequential order

This paper is not to be opened until the invigilator has granted permission

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QUESTION 1

a) Outline the different types of noise that workers are exposed to at the workplace and what health effects are associated with each of them. (20)
b) Name and briefly discuss two (2) features of sound. (5)

QUESTION 2

a) Give a diagrammatic representation of how an assessment of health risk exercise should flow (8)
b) If you were to carry out biological measurements to workers on skin, breath and vision, what indicators will you be looking for? (6)
c) What should normally happen if there is a less satisfactory situation in responding to assessment of health risks (4)
d) What characteristics define a good health surveillance technique? (6)
e) Define cartridge saturation? (1)

QUESTION 3

a) Outline the general features of a Local Exhaust Ventilation (LEV) (5)
b) If you were to defend what makes some LEV system fail to function, what reasons will you advance? (8)
c) As a newly recruited safety officer one of your duties is to carry out health surveillance of your workers, why is this of utmost importance to undertake? (6)
d) Name the three (3) basic types of LEV hoods that industries may utilise to control workplace contaminants. (6)

QUESTION 4

a) What do the following stand for in relation to industrial hygiene? (4)
   i. PS4R and
   ii. HIS?
b) Define Equivalent Sound Level (Leq). (4)
c) Explain briefly what the following terms mean (12)
   i. Lower exposure action values
   ii. Upper exposure action values
   iii. Exposure limit values
d) What do you understand by a 5dB doubling concept (2)
e) Briefly describe an Oxygen deficient environment and give an example of such (3)

QUESTION 5

a) In relation to lighting, what do the following terms imply? (4)
   i. Quality
   ii. Quantity
b) Workers are able to transfer heat from themselves to the general environment. Write the formula for heat transfer and indicate what each parameter stands for. (7)
c) In a tabular form indicate the possible health effects that are associated with both hot and cold environments in the workplace. (10)
d) List four factors that may influence heat balance in the workplace? (4)