

FT-804

B.E. VIII Semester

Examination, June 2017

Industrial Hygiene & Occupational Health

Time : Three Hours

Maximum Marks : 70

Note: i) Answer any five questions.

ii) All questions carry equal marks.

1. A worker was exposed, over his work shift, to various level of n-pentane and for varying periods of time, as shown in the tabulated exposure history below. The appropriate ACGIH standard that apply to n-pentane are the TLV-TWA = 600 ppm (vol) and the TLV STEL = 750 ppm (vol). What was this employee's 8-hour TWA exposure to n-pentane?
2 Hours - 451 ppm (vol)
3 Hours - 728 ppm (vol)
1.5 Hours - 619 ppm (vol)
1.5 Hours - 501 ppm (vol)
2. Benzene is a relatively unique volatile organic in that it has three publishable exposure limits - its PEL-TWA = 1.0 ppm (vol), its PEL-STEL=5.0ppm(vol) and its PEL-C=25.0ppm (vol). Express these concentrations in mg/m³, assuming STP conditions. Benzene's Molecular Weight is 78.11.
3. The foreman of a machine shop has his work station located an equal distance from six separate grinder, each of which produces noise at 106dBA when in operation. What sound pressure level in dBA would the foreman experience if all six grinder were operated simultaneously?

4. What is Cold Stress? Write the four physical disorder that can arise from cold stress.
5. What is the 8-hour Time Weighted Average TLV_{mix} for the mixed quartz species in a sample that 80% total silica if the three categories of silica that are present in the sample are in the following ratio :
[quartz] : [Cristobalite] : [Tridymite] = 18 : 13 : 9 ?
6. Discuss the general principles of evaluation of Hazards.
7. A recently graduated Industrial Hygienist was assigned to measure the velocity pressure in a duct carrying air at a velocity of 25 fps. He reported a value of 0.23 inches of water. Comment on his skill at measuring velocity pressure in a duct.
8. Answer any four of the following:
 - a) Distinguish between Threshold Limit Values and Recommended Exposure Limit.
 - b) Discuss the five physical disorders that can arise from heat stress.
 - c) Discuss the various methods of air sampling.
 - d) Describe the three basic types of air cleaning devices.
 - e) Explain the relationship between exposure, internal dose and effects.
 - f) Enlist the name of direct causes of Occupational Skin disease.
