Luv Singh

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS- September-2016

M.Tech I[st] Semester

COURSE CODE: 10M11CE114 MAX. MARKS: 15

COURSE NAME: Construction Safety & Health

COURSE CREDITS: 3 MAX. TIME: 1 HR

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume necessary data wherever required.*

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1. *Brick Mason Exposed to Silica Dust:* A brick mason was removing deteriorating mortar from bricks in a building that was being renovated. To control the spread of dust, he was using a Vacuum Dust System that included a grinder shroud, a vacuum, a vacuum hose, and filters. His employer had also provided him with a respirator. The brick mason was not allowed to wet down the work area because his employer was worried about water damage to the interior of the building.
   After several days of work, the brick mason started to develop wheezing and shortness of breath. He went to his doctor at this home town who told him that his symptoms were most likely caused by the silica dust. He informed his employer who subsequently hired an outside firm to collect air samples of the work area. The samples contained about 200 times the NIOSH Recommended Exposure Limit (REL) for crystalline silica. The type of respirator the worker was wearing had an Assigned Protection Factor (APF) of 25, which provided protection from hazardous concentrations only up to 25 times the NIOSH REL. **[Marks 1+2+2 = 5]**
   a. What went wrong in this situation? How could this incident have been prevented?
   b. Include the unsafe conditions and unsafe acts at the site.
   c. Discuss the health hazard at the site, the cause and preventive measures to be taken at each level to reduce the reoccurrence of such occupational diseases.

2. *Construction Laborer Run Over by Front-end Loader*: - A 19-year-old male construction laborer, performing the duties of a grade checker and directing traffic at a construction site, was inadvertently backed over by a front-end loader and killed. The worker had entered the moving equipment's immediate work area. The equipment operator lost sight of him. The frontend loader's backup alarm was not working at the time of the incident. The worker had never received formal comprehensive safety training. The company did not have a written code of safe practices that covered the hazards of working in close proximity to moving heavy equipment.
   a. You are the safety Director of the firm, Do an *Accidental Investigation in a appropriate procedure* taking into account the all the factors and causes contributing to the accident and also suggest the responsibilities of hierarchy at the site.
   b. What went wrong in this situation? How could this incident have been prevented?
   [Marks 3+2 = 5]

3. Why an accidental prevention programmme is essential in construction project; explain the techniques and benefits of accident prevention? Also comment upon the Cost of accidents and measurement of accidents. **[Marks = 5]**