



**University of Petroleum & Energy Studies  
School of Business, Dehradun  
MBA - URBAN INFRASTRUCTURE INDUSTRY  
END SEM EXAM-APRIL 2018**

**HSE FOR URBAN INFRASTRUCTURE INDUSTRY- MBII 933**

**TIME: 3 HRS**

**MAX MARKS; 100**

**SECTION-A**

**(2x10=20 Marks)**

**Q.1 Briefly write:**

- I. PPE -----
- II. HAZAN is -----
- III. AAQ is -----
- IV. QRA is-----
- V. EMS -----
- VI. BACT is -----
- VII. ETP -----
- VIII. ETA is -----
- IX. IITS is -----
- X. ISO -----

**SECTION-B, ATTEMPT ALL QUESTIONS**

**(4x5= 20 Marks)**

Q.2. Write Short Notes on:

- SAFETY DISTRICT
- UCVE

Q.3 Contractor safety is big issue for any sector. Discuss your role as safety manager for selection of contractor.

Q.4 What are the limitations of regulatory agencies? How can you make safety issues effective in your mill?

Q.5 Describe, in detail, safety related procedures and safety related rules with reference to industry.

Q.6 What do you understand by the term "Permit to work system". Give various permits applicable for construction industry.

**SECTION -C, ATTEMPT ANY TWO QUESTIONS****(15x2= 30 Marks)**

- Q.7 Number of diseases is increasing in areas where hazardous industries are operating without using suitable air pollution control equipment. Describe different air pollution control equipment used in industrial operations.
- Q.8 Risk assessment at various stages of plant life can help in reduction of major accidents. Discuss objectives of risk assessment and components of risk assessment.
- Q.9 What is disaster management plan? Describe categories of emergency with elements of a major emergency management plan.

**SECTION D – CASE STUDY****(1x30= 30Marks)**

- Q.10a. Find out major causes of the disaster in current case study.
- Q.10.b What is learning as safety officer from this accident?

The **Fukushima Daiichi nuclear disaster** [Fukushima Daiichi](#) was a [catastrophic failure](#) at the [Fukushima I Nuclear Power Plant](#) on 11 March 2011, resulting in a [meltdown](#) of three of the plant's six nuclear reactors. The failure occurred when the plant was hit by the [tsunami](#) triggered by the [Tōhoku earthquake](#). the plant began releasing substantial amounts of [radioactive materials](#) beginning on 12 March, becoming the largest nuclear incident since the 1986 [Chernobyl disaster](#) and the second (with Chernobyl) to measure Level 7 on the [International Nuclear Event Scale](#) initially releasing an estimated 10-30% of the earlier incident's radiation. In August 2013, it was stated that the massive amount of radioactive water is among the most pressing problems that are affecting the cleanup process, which is expected to take decades. There have been continued spills of contaminated water at the plant, and some into the sea. Plant workers are trying to lower the leaks using measures such as building chemical underground walls, but they have not improved substantially.

Although no [short term radiation exposure fatalities](#) were reported, some 300,000 people [evacuated](#) the area, approximately 18,500 people died due to the earthquake and tsunami, and as of August 2013 approximately 1,600 deaths were related to the evacuation conditions, such as living in [temporary housing](#) and hospital closures. The exact cause of the majority of these evacuation-related deaths were unspecified because that would hinder the deceased relatives' application for [financial compensation](#).

The [World Health Organization](#) indicated that evacuees were exposed to so little radiation that radiation-induced health impacts are likely to be below detectable levels, and that any additional cancer risk from radiation was small—extremely small, for the most part—and chiefly limited to those living closest to the plant. A 2013 WHO report predicts that for populations living in the most affected areas there is a 70% higher risk of developing thyroid cancer for girls exposed as infants (but experts said the overall risk was small: the radiation exposure means about 1.25 out of every 100 girls in the area could develop thyroid cancer over their lifetime, instead of the natural rate of about 0.75 percent), a 7% higher risk of leukemia in males exposed as infants, a 6% higher risk of breast cancer in females exposed as infants and a 4% higher risk, overall, of developing solid cancers for females.

The World Health Organization stated that a 2013 thyroid ultrasound screening programme was, due to the [screening effect](#), likely to lead to an increase in recorded thyroid cases due to early detection of non-[symptomatic](#) disease cases. This [screening](#) program found that more than a third (36%) of children in the Prefecture have [abnormal growths in their thyroid glands](#), however whether these growths can be attributed to exposure to nuclear radiation has not yet been proven.

The [Fukushima Nuclear Accident Independent Investigation Commission](#) found the nuclear disaster was "manmade" and that its direct causes were all foreseeable. The report also found that the plant was incapable of withstanding the earthquake and tsunami. TEPCO, regulators Nuclear and Industrial Safety Agency (NISA) and NSC and the government body promoting the nuclear power industry (METI), all failed to meet the most basic safety requirements, such as assessing the probability of damage, preparing for containing collateral damage from such a disaster, and developing evacuation plans. A separate study by Stanford researchers found that Japanese plants operated by the largest utility companies were particularly unprotected against potential tsunamis

