

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination November 2018

MTech in Health, Safety and Environment Engineering, Semester I

Roll No.....

MTHSE103: Safety in Engineering Industry

Time: 3 hours

Max. Marks: 80

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Objective type multiple choice questions (10 questions @ 1 mark)

10

- i. Safety training is mandated under provisions of:
 - a. AWS "Safe Practice"
 - b. OSHA
 - c. ASME Code
 - d. Welding Handbook, Volume 2.
- ii. A "Hot Work Permit" is required for:
 - a. All welding operations
 - b. All cutting operations
 - c. All preheating operations
 - d. Areas where a fire hazard may occur during welding, cutting, or preheating operation.
- iii. The welding inspector is expected to which of the following safety hazards:
 - a. Radiation
 - b. Electrical shocks
 - c. Eye hazards
 - d. All of the above
- iv. Which types of moving parts need guarding?
 - a. Power transmission apparatus
 - b. The point of operation
 - c. Other moving parts
 - d. All of the above.
- v. What is the difference between a guard and a safety device?
 - a. The guard creates no new hazards; the safety device is a physical barrier that prevents contact with the moving parts.
 - b. The guard is a physical barrier that prevents access to danger areas; the device performs one of several functions.
 - c. The guard requires the operator to use both hands to run the machine; the device is a physical barrier.
 - d. There is no difference.
- vi. Personal protective equipment:
 - a. Is never needed if machine guards are used.
 - b. Never contributes to a job's hazards
 - c. Is required when guards can't provide full protection.
 - d. Is an example of a two-hand control
- vii. This part applies to power presses which shear, punch, form, or assemble metal or any other material by means of tools or dies attached to plungers or slides and which are commonly referred to as mechanical power presses.

- a. True
- b. False

- viii. The employer's responsibilities include:
 - a. Train and instruct an operator in the safe method of work.
 - b. Ensure that correct operating procedures are being followed.
 - c. Ensure that required safeguards are installed, functional and being used.
 - d. All of the above.
 - e. None of the above.
- ix. What is recrystallization temperature?
- x. Interlocked guards:
 - a. Require a key
 - b. Shut off the machine if they are opened.
 - c. Open automatically if the machine stops.
 - d. Are battery operated.

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| Q.2 | Short answer type questions (4 questions @ 2.5 marks) | 10 |
| i. | When 'Lockout' and 'Tagout' is required? | |
| ii. | Members involved in Risk assessment team? | |
| iii. | Write the name of broad categories of hazards in metal working processes? | |
| iv. | What do you understand by 'kickback' problem in wood working machinery? | |
| Q.3A | Explain working principle of power press with neat diagram. What are the general safety precautions to avoid accidents and injuries while working with power press? | 05 |
| Q.3B | Write about different types of machine guards used in industry. | 05 |
| Q.4 | Differentiate between cold working and hot working processes. | 05 |
| Q.5 | Write down the working principle of Milling machine. What are the general safety precautions to avoid accidents and injuries while working on Milling Machine? | 10 |
| Q.6 | What is chlorination? Why it is important? What safety concerns have to take while handling and storage of chlorine? | 05 |
| | OR | |
| Q.6 | Why safety is an important concern while working in water treatment plant. | 05 |
| Q.7 | What occupational health and safety issues encountered during foundry activities in the industry? What safety concern should an employee have to take while working in foundry industry? Discuss in detail. | 15 |
| Q.8 | What is welding? Discuss different occupational health and safety issues encountered during welding processes. If you are working in an industry as an safety officer, how will you train a worker about personal protection during welding processes. | 15 |
| | OR | |
| Q.8 | Explain Risk management process in detail. | 15 |

***** GOOD LUCK *****