

18E45

B. Tech. EXAMINATION, 2020

(Fifth Semester)

(C Scheme) (Main Only)

CHE309C

PROCESS UTILITIES AND SAFETY

Time : 2½ Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Differentiate between process utilities and process streams. Discuss various process utilities available for cooling of process streams with their range of applications.
2. Discuss heat transfer media being used in industries. How can their efficient use be ensured ?
3. What is Piping Network ? Explain with colour codes and neat sketch. What process streams and process utilities are used through piping network ?
4. Discuss the importance of water as an utility in industries. How demineral water and boiler feed water is generated in industries ?
5. Enlist the various hazards caused due to fire explosion. What is meant by “Fire and Explosion Index” ? How is this calculated through material factor ? Give also the range of MF.

6. Discuss the various methods employed for the storage of hazardous materials/ chemicals. What safety considerations are to be taken in plant layout and design.
7. Explain in detail HAZOP analysis of plants. Also give acceptable risks and safety priorities in such an analysis.
8. What are unconfined vapor-cloud explosion and dust explosion ? Also discuss their causes. How Bhopal Gas-leak disaster could have been avoided ?