BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VII CHEMICAL : WINTER- 2022
SUBJECT : PLANT UTILIIES & PROCESS SAFETY

Day : Friday
Time : 02:30 PM-05:30 PM

Date : 09-12-2022
W-13594-2022
Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat labelled diagrams **WHEREVER** necessary.
4) Assume suitable data if necessary.

Q.1 Summarize the water resource management for various utility systems. **(10)**

OR

Q.1 Enlist the constituents of water that affects water quality. Explain their effect.

Q.2 Summarize the generation, distribution and utilization of steam in typical chemical process plant. **(10)**

OR

Q.2 Elaborate concept of water heat boilers for effects utilization of waste heat.

Q.3 Classify vacuum pumps. Outline the principle and working of oil seal vacuum pump. **(10)**

OR

Q.3 Indicate the selection, management and safety of refrigerant.

Q.4 Outline the hazards analysis techniques: HAZOP and HAZAN. **(10)**

OR

Q.4 Summarize safety aspects of a typical chemical plant with respect to :
i) Plant layout ii) Site selection iii) Unit plot planning

Q.5 Outline safety parameters in process design of phenol from cumene. **(10)**

OR

Q.5 Illustrate the risk and hazards for following chemicals:
i) Oleum ii) allyl alcohol iii) acetonitrile

Q.6 Indicate process safety hierarchy in chemical plants. Outline the importance of safety reviews. **(10)**

OR

Q.6 Recommend a process safety strategies with inherently safer design of a process plant.

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