

Programme Name & Branch : B.Tech. Chemical Engineering
 Course Code : BCHE304L
 Course Name : Chemical Process Technology and Economics
 Faculty Name(s) : Dr. Aslam Abdullah M (13287)
 Class Number(s) : VL2025260101246
 Date of Examination : 19 August 2025
 Exam Duration : 90 minutes

Maximum Marks: 50

General Instruction(s):

- Answer ALL the questions. Each Question carries 10 marks
- Draw neat flowsheets using scale, pencil & Pro-circle wherever required.
- CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- **Course Outcomes:**
 1. Outline organic and inorganic chemical processes in the industry.
 2. Explain the manufacture of industrial gases used in the chemical industry.
 3. Identify the manufacturing processes in the fertilizer industry.

Q.No.	Question	Max. Marks	CO	BL
1	A company has suggested you to check the feasibility while you integrate (Combine) the synthetic ammonia production process and urea production process. During the integration, the following recommendations were suggested by the company. (i) Ammonia cannot be used as a refrigerant. Use any other Refrigerant. (ii) Usage of Multistage Compressor unit (iii) Use of Horizontal Separator instead of Vertical Separator (iv) Use Separate (Individual) Oxidation and Absorption Tower (v) Use of two no's of synthesis autoclave (vi) Replace Flash Drum with Evaporator (vii) Use of Membrane Filter instead of Oil Filter. Draw a neat flowsheet (combining) based on the recommendations suggested by the company.	10	3	3
2	Describe how you will manage the production of sulfur and sulfur-dioxide from pyrites by managing high pressure delivery throughout the system with neat flowsheet.	10	1	2
3	Draw a neat flowsheet to produce elemental phosphorus, phosphorus pentoxide and phosphoric acid by electric furnace method	10	3	
4	Draw a neat flowsheet for the manufacture of phosphoric acid and chemical fertilizer from phosphate rock by strong acid process.	10	3	
5	(a) Explain different types of cement (b) Compare the production of producer gas and water gas	10	2	