Set I

Ph.D. Entrance Examination,

[redacted]

CHEMICAL ENGINEERING

ANSWER KEYS

Section - I

Research Methodology

1. **Answer:** b) Basic Research
2. **Answer:** c) Identifying the problem

3. **Answer:** d) Likert Scale
4. **Answer:** c) Research Design
5. **Answer:** a) Chi-square Test
6. **Answer:** c) Dispersion
7. **Answer:** d) Non-directional Hypothesis
8. **Answer:** a) Sampling
9. **Answer:** b) Reliability
10. **Answer:** d) Hypothesis Testing
11. **Answer:** c) Literature Review
12. **Answer:** a) The null hypothesis is true, but rejected
13. **Answer:** b) Plagiarism
14. **Answer:** b) Constructs
15. **Answer:** b) Hypothesis testing
16. **Answer:** b) Correlational
17. **Answer:** a) Narrowing the research
18. **Answer:** d) ANOVA
19. **Answer:** b) Discrete variable
20. **Answer:** a) Dividing a population into subgroups based on characteristics
21. **Answer:** d) Thesis
22. **Answer:** b) Regression analysis
23. **Answer:** c) Nominal scale
24. **Answer:** b) Using multiple methods to collect data
25. **Answer:** b) Theoretical framework

Section - II

CHEMICAL ENGINEERING CORE

1. **Answer:** b) To transfer heat between two fluids
2. **Answer:** b) Diffusivity
3. **Answer:** a) Reactor mixing and flow patterns
4. **Answer:** c) Dispersion Model
5. **Answer:** d) Color of reactant
6. **Answer:** d) Ideal Gas Law
7. **Answer:** b) Light Scattering
8. **Answer:** c) Chemical reactions that require varied residence times
9. **Answer:** b) Reaction spontaneity
10. **Answer:** d) Power consumption
11. **Answer:** c) Reverse osmosis
12. **Answer:** b) Separate solids from gases
13. **Answer:** c) To decrease the activation energy
14. **Answer:** c) Viscosity and mass diffusivity
15. **Answer:** b) Laminar flow
16. **Answer:** c) Recycling process
17. **Answer:** b) Enhanced vapor-liquid contact
18. **Answer:** a) The substance can exist as both liquid and gas
19. **Answer:** a) Heat transfer in laminar flow
20. **Answer:** c) Isolated system
21. **Answer:** a) Fluid viscosity and flow rate
22. **Answer:** a) Steady-state diffusion
23. **Answer:** b) Reaction rate and diffusion rate
24. **Answer:** c) Energy
25. **Answer:** b) Endothermic