B.Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2020
SEMESTER – 6: CHEMISTRY (CORE COURSE)
COURSE: 15U6CRCHE11: PHYSICAL CHEMISTRY - III
(Common for Regular 2017 Admission & Supplementary 2016 /2015 Admissions)

Time: Three Hours   Max Marks: 60

SECTION A
Answer all questions. Each question carries 1 mark

1. Give one example for state function.

2. Write equation for Gibbs free energy.

3. What is the unit of rate constant for the reaction having zero order?

4. State phase rule for non reacting system.

5. Point out four major operations in Carnot cycle.

6. Write an expression for Gibbs Duhem equation

7. Give any one example for Homogeneous Catalysis.

8. What is S.I unit of Entropy.   (1 × 8 = 8)

SECTION B
Answer any six questions. Each question carries 2 marks

9. The half-life of a substance in a first order reaction is 30min. Calculate the rate constant.

10. State steady state approximation with suitable example

11. Sketch and label the phase diagram of Lead -Silver system.

12. What are extensive and intensive properties? Give one example for each.

13. What is meant by State Van't Hoff reaction isotherm?

14. State and explain third law of thermodynamics.

15. Explain Kirchoff's equation.

16. Calculate the maximum efficiency of an engine operating between 150^0C and 55^0C. (2 × 6 = 12)

SECTION C
Answer any four questions. Each question carries 5 marks

17. Explain the phase diagram sulphur system.

18. Derive an expression depicting relation between Kc, Kx and Kp

19. Describe briefly about the applications of - Gibbs Helmholtz equation.

20. Explain a short note on enzyme catalysis and its mechanism.

21. State Arrhenius Equation and its significance.

22. Briefly explain the factors influencing rate of reactions.

(5 × 4 = 20)

SECTION D

Answer any two questions. Each question carries 10 marks

23. Explain the kinetics of consecutive reactions.

24. (a) Derive Claypeyron - Clausius equation. Discuss its applications (b) Hessess Law

25. Explain (a) Collision Theory (b) Activated Complex Theory.

26. Explain joule- Thomson effect and experiment.   (10 x 2 = 20)

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