



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – MATHEMATICS & PHYSICS

FOURTH SEMESTER – APRIL 2018

CH 4206- GENERAL CHEMISTRY FOR MATHS & PHYS. - II

Date: 02-05-2018
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 x 2 = 20)

1. Define lattice energy.
2. What is radius ratio? Mention its importance.
3. What is chromophore? Mention the chromophore present in congo red.
4. Draw the structure of penicillin.
5. What is aspirin?
6. State Hess's law of constant heat of summation.
7. Mention the differences between strong and weak electrolytes.
8. Give any four properties of carbohydrates.
9. Mention the differences between pesticides and herbicides?
10. What are mixed fertilizers? Give an example.

Part-B

Answer any EIGHT questions.

(8 x 5 = 40)

11. Explain the structure of sodium chloride.
12. How is lattice energy determined by Born-Haber cycle?
13. Discuss the method of separation of o- and p-nitro phenols by steam distillation.
14. What are sulphadiazine drugs? Give the synthesis of sulphanilamide.
15. Explain the factors affecting the enzyme catalyzed reaction.
16. How are dyes classified based on the mode of dyeing?
17. State Kohlrausch's law? Give any two applications.
18. Derive thermodynamically Kirchoff's equation.
19. How is the N-terminal amino acid sequence of polypeptides determined?
20. Define the following terms: a) heat of combustion b) bond dissociation energy
21. What are liquid fuels? Discuss in detail the fractional distillation of petroleum.
22. Briefly discuss the secondary structure of protein.

Part-C

Answer any FOUR questions.

(4 x 10 = 40)

- 23a. What are the differences between amorphous and crystalline solids? (4)
- b. How are crystalline solids classified? (6)

24. What is hydrogen bonding? Explain the types of hydrogen bonding with suitable examples. Mention the consequences of hydrogen bonding.
25. Discuss the lock and key mechanism of enzyme.
26. Discuss in detail the sources of renewable and non-renewable energy sources.
27. Compare the advantages and disadvantages of nuclear fission and fusion reactions.
- 28a. Define Faraday's second law of electrolysis. (4)
- b. When the same quantity of current is passed through aqueous solution of AgNO_3 and CuSO_4 , 3.623 gm of Ag and 1.007 gm of Cu are deposited. Calculate the equivalent weight of Cu (Equivalent weight of Ag = 107). (6)
