LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **MATHEMATICS& PHYSICS**

THIRDSEMESTER – APRIL 2018

CH 3202- ADVANCED GENERAL CHEMISTRY FOR PHYS. & MATHS

Date: 04-05-2018 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

Part-A

Answer ALL questions. **(10 × 2= 20)**

1. What is hydrogen bonding?
2. How is ionic radius measured?
3. Write the Reimer-Tiemann reaction of pyrrole.
4. Draw the structure of Congo-red dye.
5. What is bond dissociation energy?
6. Define lattice energy.
7. Draw the structure of glucose.
8. What is polypeptide bond?
9. Draw the structure of BHC. Mention its uses.
10. What are macro nutrients. Give any two examples.

Part-B

Answer any EIGHT questions. **(8 × 5= 40)**

11. Explain the hydrogen bonding involved in ortho and paranitrophenols.
12. Discuss lanthanide contraction giving causes and its consequences.
13. How is malachite green prepared? Give its uses.
14. Write any two methods for the preparation of furan.
15. How is aspirin synthesized? Mention its uses.
16. State and explain the Kohlrausch's law.
17. Derive Kirchoff's equation.
18. Describe the working principle of primary standard electrode.
19. Draw and explain the α helix structure of protein.
20. How are enzymes classified?
21. What are herbicides? Draw the structures of 2,4-D.
22. Explain nuclear fission reaction.

Part-C

Answer any FOUR questions. **(4 × 10= 40)**

23. How are lanthanides separated by ion exchange method?

24a. Discuss the structure and uses of the following a) Penicillin b) Sulphanilimide. (5)

b. How is naphthalene synthesized? (5)

25a. What are chromophores and auxochromes? Give examples for each. (5)

b. Calculate lattice energy of the NaCl crystal using Born-Haber cycle. (5)

26a. How is the equivalent conductance of electrolyte solution determined? (5)

b. Discuss the following a) EMF b) standard reduction potential. (5)

27a. What are the factors affecting enzyme reaction? (5)

b. Describe the specific action of an enzyme using Lock and Key model. (5)

28. Explain renewable and nonrenewable sources of energy with suitable examples.

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