B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Allied Chemistry - I

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What are weak electrolytes? Mention an example.
2. Find pH of 0.01 M HCl solution.
3. Cite any two advantages of gaseous fuels over other types of fuels.
4. Mention the composition of semi-water gas.
5. What is the role of chlorine in the purification of water?
6. Classify the following as electrophiles and nucleophiles. OH^-, Br^+, Cl^-, $^+CH_3$.
7. Write the mechanistic step involved in the generation of nitronium ion for the nitration of benzene.
8. What are free radicals? Give an example.
9. Pyridine is basic in nature. Why?
10. Mention the uses of thiophene.
11. Define quantum efficiency.
12. Write the overall reaction of photosynthesis.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain the common ion effect with suitable examples.
14. Differentiate temporary hardness from permanent hardness.
15. Explain the purification of hard water by reverse osmosis process.
16. Discuss the hybridisation of ethylene.
17. Explain the mechanism of sulphonation of benzene.
18. Draw the resonance structures of pyrrole and write any two properties of pyrrole.
19. State the following laws of photochemistry.
    (i) Grothus-Draper Law (ii) Stark-Einstein Law

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. (a) What are buffer solutions? Explain how pH of buffer solution is calculated?
    (b) Write a note on buffer action in biological systems.
21. Explain the manufacture of the following and mention their uses.
    (i) Urea (ii) Ammonium sulphate (iii) Superphosphate of lime.
22. Describe the classification of organic reactions with suitable examples.
23. How will you effect the following conversions?
    Write the corresponding equations.
    (i) Furan $\rightarrow$ Tetrahydrofuran (ii) Thiophene $\rightarrow$2-nitrothiophene
    (iii) Pyridine $\rightarrow$2-aminopyridine (iv) Pyridine $\rightarrow$ Piperidine
24. Define the following with an example.
    (i) Photosensitisation (ii) Phosphorescence
    (iii) Fluorescence (iv) Chemiluminescence

B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Allied Chemistry - I

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What are weak electrolytes? Mention an example.
2. Find pH of 0.01 M HCl solution.
3. Cite any two advantages of gaseous fuels over other types of fuels.
4. Mention the composition of semi-water gas.
5. What is the role of chlorine in the purification of water?
6. Classify the following as electrophiles and nucleophiles. OH^-, Br^+, Cl^-, $^+CH_3$.
7. Write the mechanistic step involved in the generation of nitronium ion for the nitration of benzene.
8. What are free radicals? Give an example.
9. Pyridine is basic in nature. Why?
10. Mention the uses of thiophene.
11. Define quantum efficiency.
12. Write the overall reaction of photosynthesis.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain the common ion effect with suitable examples.
14. Differentiate temporary hardness from permanent hardness.
15. Explain the purification of hard water by reverse osmosis process.
16. Discuss the hybridisation of ethylene.
17. Explain the mechanism of sulphonation of benzene.
18. Draw the resonance structures of pyrrole and write any two properties of pyrrole.
19. State the following laws of photochemistry.
    (i) Grothus-Draper Law (ii) Stark-Einstein Law

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. (a) What are buffer solutions? Explain how pH of buffer solution is calculated?
    (b) Write a note on buffer action in biological systems.
21. Explain the manufacture of the following and mention their uses.
    (i) Urea (ii) Ammonium sulphate (iii) Superphosphate of lime.
22. Describe the classification of organic reactions with suitable examples.
23. How will you effect the following conversions?
    Write the corresponding equations.
    (i) Furan $\rightarrow$ Tetrahydrofuran (ii) Thiophene $\rightarrow$2-nitrothiophene
    (iii) Pyridine $\rightarrow$2-aminopyridine (iv) Pyridine $\rightarrow$ Piperidine
24. Define the following with an example.
    (i) Photosensitisation (ii) Phosphorescence
    (iii) Fluorescence (iv) Chemiluminescence