

**ANNUAL PRACTICE PAPER**

CLASS : XII

SET : V

MAX.MARKS : 70

SUBJECT : CHEMISTRY

TIME : 3

Hrs. \_\_\_\_\_

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**ORGANIC COMPOUNDS CONTAINING NITROGEN**

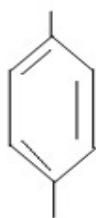
**BIOMOLECULES, POLYMERS AND CHEMISTRY IN EVERY DAY LIFE**

**General Instructions:**

1. All Questions are compulsory.
  2. Marks for each question are indicated against it.
  3. Question number 1 to 8 are very short answer questions and carry 1 mark each.
  4. Question number 9 to 18 are short answer questions and carry 2 marks each.
  5. Question number 19 to 27 are also short answer questions and carry 3 marks each.
  6. Question number 28 to 30 are long answer questions and carry 5 marks each.
  7. There will be no overall option. Internal choice is given for all three 5 marks questions.
  8. Use log table if necessary, use of calculator is not permitted.
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1. Give the IUPAC name of

NH<sub>2</sub>



Br

2. Direct nitration of aniline is not carried out. Explain why?

3. What type of linkage holds together the monomers of D.N.A.
4. Why the ring structure of glucose is called as pyranose structure.
5. Expand the term P V C.
6. Name the monomers of nylon -2-nylon - 6 - polymer.
7. Give one example of an artificial sweetener used by the diabetic patients.
8. What are food preservatives?
9. Predict giving reasons the order of basicity of the following compounds in
  - (i) gaseous phase
  - (ii) in aqueous solution $(\text{CH}_3)_3\text{N}$  ,  $(\text{CH}_3)_2\text{NH}$  ,  $\text{CH}_3\text{NH}_2$  ,  $\text{NH}_3$  .
10. Define the following as related to proteins
  - (i) Peptide linkage
  - (ii) Denaturation
11. Explain D- and L- Configurations of stereo isomers with reference to Fischer's projection.
12. Why terylene is called as polyester where as Nylon 6,6 as polyamide though both of them are condensed polymers?
13. Explain the difference between Buna -N and Buna -S
14. Discuss the main purpose of Vulcanization of rubber.
15. Why is Bakelite hard and has high melting point?
16. What is the basic difference between thermo plastic polymers and thermo setting polymers?
17. Low level of noradrenalin is the cause of depression. What type of drugs are needed to cure this problem? Name two drugs.
18. Sleeping pills are recommended by doctors to patients suffering from sleeplessness but it is not advisable to take dose without consultation with the doctor why?
19. Write short notes on the following:
  - (i) Carbylamines reaction.
  - (ii) Diazotization reaction.
  - (iii) Hoffman's bromamide reaction.
20. Identify the following reactions:
  - (i)  $\text{C}_2\text{H}_5\text{C}\equiv\text{N} \xrightarrow{\text{LiAlH}_4} \text{A} \xrightarrow{\text{HNO}_2} \text{B}$
  - (ii)  $\text{C}_6\text{H}_5\text{NH}_2 \xrightarrow[\text{H}_2\text{O}]{\text{Br}_2} \text{A} \xrightarrow[273\text{ K}]{\text{NaNO}_2/\text{HCl}} \text{B}$
  - (iii)  $\text{C}_6\text{H}_5\text{NH}_2 \xrightarrow[\text{H}_2\text{SO}_4]{\text{Con}} \text{A}$
21. Give reasons for the following.
  - (i) sucrose is non - reducing sugar.

- (i) the product of hydrolysis of sucrose is named as invert sugar.
- (ii) maltose is reducing sugar.

22. Explain the evidence for the following in favor of the structure of glucose.

- (i) the presence of aldehydic group.
- (ii) existence of five - OH groups on different carbons.
- (iii) Presence of primary alcoholic group.

23. Give reasons for the following.

- (i) Cellulose is not digested in human body.
- (ii) Vitamin 'C' cannot be stored in our body.
- (iii) Solubility of amino acids are higher than corresponding halo acids.

24. How are synthetic polymeric wastes potential environmental hazards? Suggest suitable ways to make use of polymeric wastes?

25. Differentiate between broad spectrum and narrow spectrum antibiotics with examples.

26. Describe the following with an example each.

- (i) Antimicrobials (ii) Analgesics (iii) Antipyretics

27. Explain the following terms with suitable examples.

- (i) Cationic detergents (ii) Anionic detergents (iii) non - ionic detergents

28. (a) What is meant by DNA finger printing?

(b) Write the important structural and functional differences between DNA and RNA.

OR

- (a) What are essential amino acids? Give examples.
- (b) Explain the primary, Secondary and tertiary structure of proteins.

29. (a) Why cannot aromatic primary amines be prepared by Gabriel phthalimide Synthesis?

(b) An aromatic compound 'A' on treatment with aqueous ammonia and heating forms compound 'B' which on heating with  $\text{Br}_2$  and KOH forms a compound 'C' of molecular formula  $\text{C}_6\text{H}_7\text{N}$ . Write the structures and IUPAC names of compounds A, B and C.

or

(a) Electrophilic substitution in case of aromatic amines takes place more readily than benzene.

(b) An organic compound 'A' having molecular formula  $C_3H_5N$  on hydrolysis gave another compound 'B'. The compound 'B' on treatment with  $HNO_2$  gave ethyl alcohol. 'B' on warming with  $CHCl_3$  and alcoholic caustic potash gave an offensive smelling substance 'C'. Identify 'A', 'B' and 'C'.

30. (a) Give one chemical test to distinguish between the following pairs of compounds.

- (i) Secondary and tertiary amines.
  - (ii) Aniline and benzylamine.
- (b) Account for the following:
- (i) Ethylamine is soluble in water whereas aniline is not.
  - (ii) Aniline does not undergo Friedel-Crafts reaction.
  - (iii) Diazonium salts of aromatic amines are more stable than those of aliphatic amines.

Or

(a) Give reasons for the following observations:

- (i) It is difficult to prepare pure amines by ammonolysis of alkyl halides.
- (ii) Electrophilic substitution in case of aromatic amines takes place more readily than in benzene.

(b) How do you convert:

- (i) Methanamine into ethanamine
- (ii) Ethanamine into methanamine
- (iii) Ethanoic acid into methanamine