



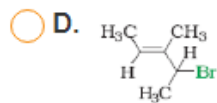
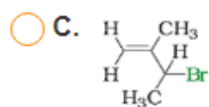
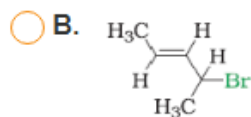
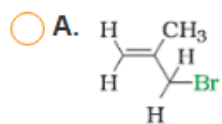
INDIAN SCHOOL AL WADI AL KABIR

<b>Class: XII</b>	<b>Department: SCIENCE</b> <b>SUBJECT : CHEMISTRY</b>	<b>Date of submission:</b> <b>4<sup>TH</sup> August 2019</b>
<b>HOLIDAY ASSIGNMENT</b>	<b>Topics: ORGANIC CHEMISTRY – SURFACE CHEMISTRY – CHEMISTRY IN EVERYDAY LIFE</b>	<b>Note:A4 FILE FORMAT</b>

\* PLEASE NOTE: This holiday assignment will be a part of Evaluation towards Internal Grades in the AT -1

1.

Which of the following is 4-bromopent-2-ene?



2.

The isomer of dichlorobenzene which has highest boiling point

- A. o-dichlorobenzene
- B. p-dichlorobenzene
- C. m-dichlorobenzene
- D. 1,2 dichlorobenzene

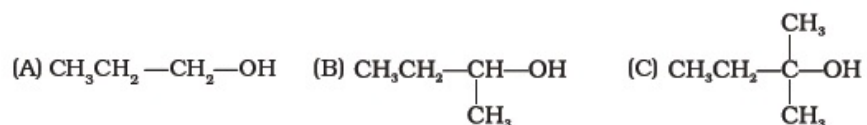
3.

Which of the following is a tertiary halogenoalkanes?

- A. 2-Bromopentane
- B. 2-Bromo 3-methylpentane
- C. Bromopentane
- D. 2-Bromo 2-methylpentane

4.

The order of reactivity of following alcohols with halogen acids is \_\_\_\_\_.



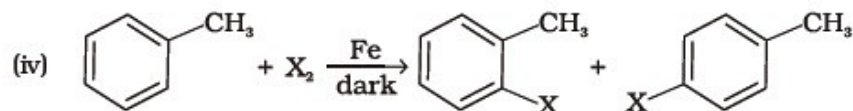
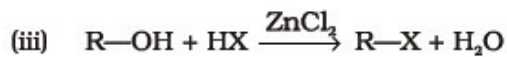
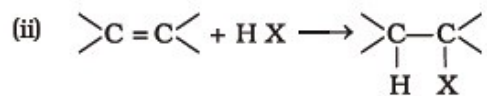
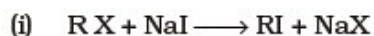
5.

Which of the following alcohols will yield the corresponding alkyl chloride on reaction with concentrated HCl at room temperature?

- (i)  $\text{CH}_3\text{CH}_2-\text{CH}_2-\text{OH}$
- (ii)  $\text{CH}_3\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{OH}$
- (iii)  $\text{CH}_3\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_2\text{OH}$
- (iv)  $\text{CH}_3\text{CH}_2-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}-\text{OH}$

6.

Which of the following is halogen exchange reaction?



7.

Which reagent will you use for the following reaction ?



- (i)  $\text{Cl}_2/\text{UV light}$
- (ii)  $\text{NaCl} + \text{H}_2\text{SO}_4$
- (iii)  $\text{Cl}_2$  gas in dark
- (iv)  $\text{Cl}_2$  gas in the presence of iron in dark

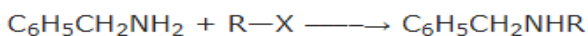
8.

The correct IUPAC name for  $\text{CH}_2 = \text{CHCH}_2\text{NHCH}_3$  is

- (i) Allylmethylamine
- (ii) 2-amino-4-pentene
- (iii) 4-aminopent-1-ene
- (iv) N-methylprop-2-en-1-amine

9.

Benzylamine may be alkylated as shown in the following equation :



Which of the following alkylhalides is best suited for this reaction through  $\text{S}_{\text{N}}1$  mechanism?

- (i)  $\text{CH}_3\text{Br}$
- (ii)  $\text{C}_6\text{H}_5\text{Br}$
- (iii)  $\text{C}_6\text{H}_5\text{CH}_2\text{Br}$
- (iv)  $\text{C}_2\text{H}_5\text{Br}$

10.

The best reagent for converting 2-phenylpropanamine into 2-phenylpropanamide is \_\_\_\_\_.

- (i) excess  $H_2$
- (ii)  $Br_2$  in aqueous NaOH
- (iii) iodine in the presence of red phosphorus
- (iv)  $LiAlH_4$  in ether

11.

Hoffmann Bromamide Degradation reaction is shown by \_\_\_\_\_.

- (i)  $ArNH_2$
- (ii)  $ArCONH_2$
- (iii)  $ArNO_2$
- (iv)  $ArCH_2NH_2$

12.

The best reagent for converting, 2-phenylpropanamide into 1- phenylethanamine is \_\_\_\_\_.

- (i) excess  $H_2/Pt$
- (ii) NaOH/ $Br_2$
- (iii)  $NaBH_4$ /methanol
- (iv)  $LiAlH_4$ /ether

13.

The reaction  $ArN_2^+Cl^- \xrightarrow{Cu/HCl} ArCl + N_2 + CuCl$  is named as \_\_\_\_\_.

- (i) Sandmeyer reaction
- (ii) Gatterman reaction
- (iii) Claisen reaction
- (iv) Carbylamine reaction

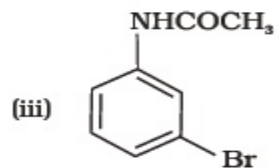
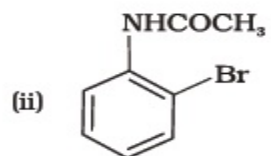
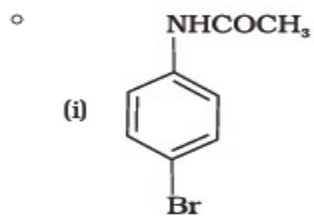
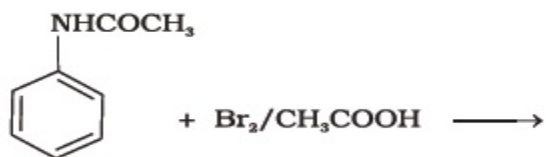
14.

Reduction of nitrobenzene by which of the following reagent gives aniline?

- (i) Sn/HCl
- (ii) Fe/HCl
- (iii) H<sub>2</sub>-Pd
- (iv) Sn/NH<sub>4</sub>OH

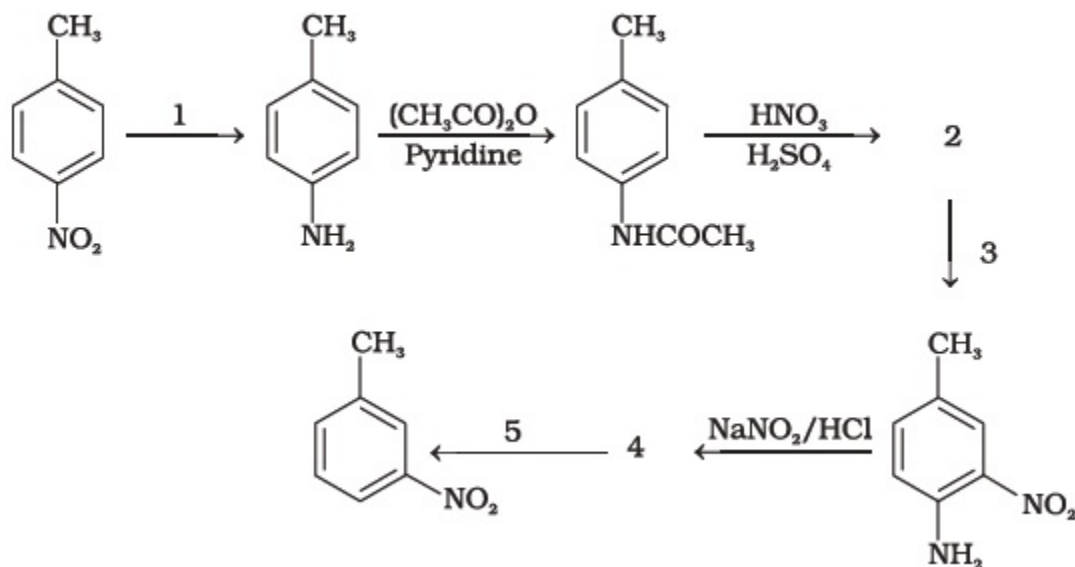
15.

The product of the following reaction is \_\_\_\_\_.



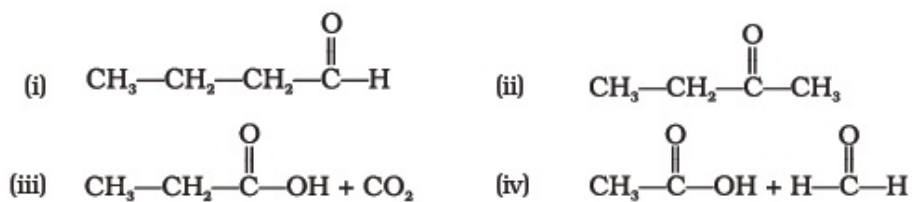
16.

Predict the reagent or the product in the following reaction sequence.



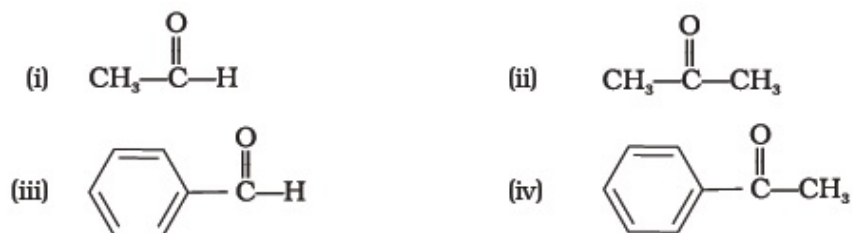
17.

Addition of water to alkynes occurs in acidic medium and in the presence of  $\text{Hg}^{2+}$  ions as a catalyst. Which of the following products will be formed on addition of water to but-1-yne under these conditions.



18.

Which of the following compounds is most reactive towards nucleophilic addition reactions?



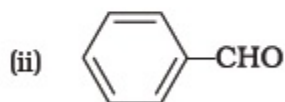
19.

The correct order of increasing acidic strength is \_\_\_\_\_.

- (i) Phenol < Ethanol < Chloroacetic acid < Acetic acid
- (ii) Ethanol < Phenol < Chloroacetic acid < Acetic acid
- (iii) Ethanol < Phenol < Acetic acid < Chloroacetic acid
- (iv) Chloroacetic acid < Acetic acid < Phenol < Ethanol

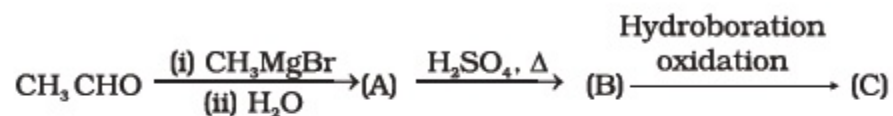
20.

Cannizzaro's reaction is not given by \_\_\_\_\_.



21.

Compounds A and C in the following reaction are \_\_\_\_\_.



- (i) identical
- (ii) positional isomers
- (iii) functional isomers
- (iv) optical isomers

22.

In Clemmensen Reduction carbonyl compound is treated with \_\_\_\_\_.

- (i) Zinc amalgam + HCl
- (ii) Sodium amalgam + HCl
- (iii) Zinc amalgam + nitric acid
- (iv) Sodium amalgam + HNO<sub>3</sub>

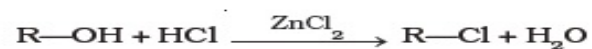
23.

Monochlorination of toluene in sunlight followed by hydrolysis with aq. NaOH yields.

- o-Cresol
- m-Cresol
- 2, 4-Dihydroxytoluene
- Benzyl alcohol

24.

What is the correct order of reactivity of alcohols in the following reaction?

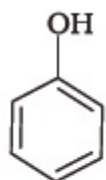


- 1° > 2° > 3°
- 1° < 2° > 3°
- 3° > 2° > 1°
- 3° > 1° > 2°

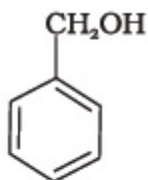


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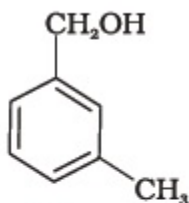
Which of the following compounds is aromatic alcohol?



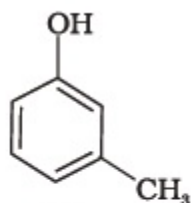
(A)



(B)



(C)

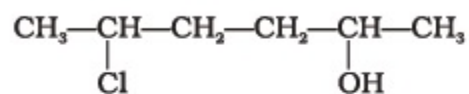


(D)

- (i) A, B, C, D
- (ii) A, D
- (iii) B, C
- (iv) A

26.

Give IUPAC name of the compound given below.



- (i) 2-Chloro-5-hydroxyhexane
- (ii) 2-Hydroxy-5-chlorohexane
- (iii) 5-Chlorohexan-2-ol
- (iv) 2-Chlorohexan-5-ol

27.

### Assertion and Reason Type Questions

**Note :** In the following questions a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

- (i) Assertion and reason both are correct and reason is correct explanation of assertion.
- (ii) Assertion and reason both are wrong statements.
- (iii) Assertion is correct statement but reason is wrong statement.
- (iv) Assertion is wrong statement but reason is correct statement.
- (v) Both assertion and reason are correct statements but reason is not correct explanation of assertion.

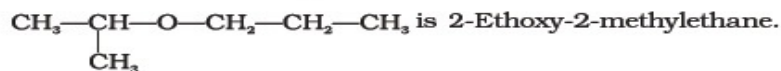
1. Assertion : Addition reaction of water to but-1-ene in acidic medium yields butan-1-ol

Reason : Addition of water in acidic medium proceeds through the formation of primary carbocation.

2. Assertion : p-nitrophenol is more acidic than phenol.

Reason : Nitro group helps in the stabilisation of the phenoxide ion by dispersal of negative charge due to resonance.

3. **Assertion** : IUPAC name of the compound



**Reason** : In IUPAC nomenclature, ether is regarded as hydrocarbon derivative in which a hydrogen atom is replaced by —OR or —OAr group [where R = alkyl group and Ar = aryl group]

4. Assertion : : Bond angle in ethers is slightly less than the tetrahedral angle.

Reason : : There is a repulsion between the two bulky (—R) groups.

28.

Match the items of column I with items of column II.

Column I	Column II
(i) Antifreeze used in car engine	(a) Neutral ferric chloride
(ii) Solvent used in perfumes	(b) Glycerol
(iii) Starting material for picric acid	(c) Methanol
(iv) Wood spirit	(d) Phenol
(v) Reagent used for detection of phenolic group	(e) Ethleneglycol
(vi) By product of soap industry used in cosmetics	(f) Ethanol

29.

Match the items of column I with items of column II.

Column I	Column II
(i) Methanol	(a) Conversion of phenol to <i>o</i> -hydroxysalicylic acid
(ii) Kolbe's reaction	(b) Ethyl alcohol
(iii) Williamson's synthesis	(c) Conversion of phenol to salicylaldehyde
(iv) Conversion of 2° alcohol to ketone	(d) Wood spirit
(v) Reimer-Tiemann reaction	(e) Heated copper at 573K
(vi) Fermentation	(f) Reaction of alkyl halide with sodium alkoxide

30. MATCH THE FOLLOWING :

Column I (Reactions)	Column II (Reagents)
(i) Benzophenone → Diphenylmethane	(a) $\text{LiAlH}_4$
(ii) Benzaldehyde → 1-Phenylethanol	(b) DIBAL—H
(iii) Cyclohexanone → Cyclohexanol	(c) $\text{Zn(Hg)/Conc. HCl}$
(iv) Phenyl benzoate → Benzaldehyde	(d) $\text{CH}_3\text{MgBr}$

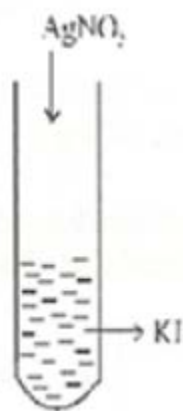
Prepared by Ms. Jenifer Robinson

## TOPIC : SURFACE CHEMISTRY

- An emulsion is a colloidal system of
  - two solids
  - two liquids
  - one gas and one solid
  - one gas and one liquid
- Which of the following is a lyophobic colloid?
  - Gelatin
  - Sulphur
  - Starch
  - Gum
- The nature of bonding forces in adsorption are
  - purely physical such as van der Waals forces
  - purely chemical
  - both chemical and physical
  - sometimes physical and sometimes chemical
- Which one of the following is not applicable to chemisorption?
  - Its heat of adsorption is high
  - It takes place at high temperature
  - It is reversible
  - It forms monomolecular layers.
- The electrical charge on colloidal particle is indicated by
  - Brownian movement
  - Electrophoresis
  - Ultra microscope
  - molecular sieves
- Cottrell precipitator works on the principle of
  - distribution law
  - neutralization of charge on colloids
  - Le Chateliers principle
  - addition of electrolytes.
- Alums purify muddy water by
  - dialysis
  - absorption
  - coagulation
  - forming true solution
- An arsenious sulphide sol carries a negative charge. The maximum precipitating power of this sol is possessed by
  - $K_2SO_4$
  - $CaCl_2$
  - $Na_3PO_4$
  - $AlCl_3$
- Adsorption of gas on a solid surface is exothermic because
  - enthalpy is positive
  - entropy decreases
  - entropy increases
  - free energy increases

10. Which of the following is an example of associated colloid.?
- a. Protein + water
  - b. Soap + water
  - c. Rubber + benzene
  - d.  $\text{As}_2\text{O}_3 + \text{Fe}(\text{OH})_3$
11. What causes Brownian movement in colloidal solution?
12. a. What are lyophilic and lyophobic colloids?  
b. Give one example of each type.  
c. Which one of them is easily coagulated and why?
13. What is coagulation process?
14. What happens in the following activities and why?
- a. An electrolyte is added to a hydrated ferric oxide sol in water.
  - b. A beam of light is passed through a colloidal solution.
  - c. An electric current is passed through a colloidal solution.
15. Classify colloids where the dispersion medium is water. State their characteristics and write an example of each of these classes.
16. Explain what is observed
- a. an electric current is passed through the sol.
  - b. a beam of light is passed through a sol.
  - c. an electrolyte (NaCl) is added to ferric hydroxide sol.
17. Define the following.
- a. Shape selective catalysis
  - b. Tyndall effect
18. Define the following.
- a. Sorption
  - b. Zeta potential
  - c. Kraft temperature
19. Define the following terms.
- a. Brownian movement
  - b. Peptization
  - c. Multimolecular colloids
20. Write the main reason for stability of colloids.

21. What is the effect of temperature on chemisorption?
22. a. What are emulsions?  
 b. What are their different types?  
 c. Give one example of each type?
23. Write the differences between physisorption and chemisorption with respect to the following.
- |                  |                           |
|------------------|---------------------------|
| a. Specificity   | b. Temperature dependence |
| c. Reversibility | d. Enthalpy change        |
24. CO (g) and H<sub>2</sub> (g) react to give different products in the presence of different catalysts. Which ability of the catalyst is shown by these reactions?
25. What happens when
- a freshly prepared precipitate of Fe(OH)<sub>3</sub> is shaken with a small amount of FeCl<sub>3</sub> solution?
  - persistent dialysis of a colloidal solution is carried out?
  - an emulsion is centrifuged?
26. Based on the type of dispersed phase, what type of colloids are micelles?
27. A colloidal solution is prepared by the given method in the figure. What is the charge of AgI colloids in the test tube ? How is the sol represented?



28. Explain how the phenomenon of adsorption finds application in Heterogeneous catalysis.

29. Which of the following electrolytes is the most effective for the coagulation of  $\text{Fe}(\text{OH})_3$  sol which is positively charged?  
 a.  $\text{NaCl}$  ,  $\text{Na}_2\text{SO}_4$  ,  $\text{Na}_3\text{PO}_4$
30. Explain the following.  
 a. Sun looks red at the time of sun set.  
 b. Physisorption is multimolecular while chemisorption is monomolecular.
31. Give one example of each  
 a. Peptizing agent  
 b. Aerosol  
 c. Micelles
32. Why is ferric chloride preferred over potassium chloride in case of a cut leading to bleeding
33. Why is ferric chloride preferred over potassium chloride in case of a cut leading to bleeding
34. a. Write the expression for Freundlich's equation to describe the behaviour of adsorption from solution?  
 b. What causes charge on sol particles?  
 c. Name the promoter used in the Haber's process for the manufacture of ammonia?

### **TOPIC : CHEMISTRY IN EVERYDAY LIFE**

#### **MULTIPLE CHOICE QUESTIONS**

1. Which of the following is an analgesic?  
 a. Chloramphenicol  
 b. Penicillin  
 c. Paracetamol  
 d. Streptomycin
2. Antipyretics are medicinal compounds which  
 a. lower body temperature  
 b. relieve pain  
 c. control malaria  
 d. can kill other organisms
3. Aspirin is an  
 a. analgesic  
 b. antipyretic  
 c. antimicrobial  
 d. Both analgesic and antipyretic
4. Barbituric acid is  
 a. an antipyretic  
 b. an antiseptic  
 c. a tranquilizer  
 d. antibiotic

5. Which of the following is a hypnotic drug?  
 a. Luminal  
 b. Salol  
 c. Catechol  
 d. Phenol
6. Among the following sweeteners, which one has the lowest sweetness?  
 a. Alitame  
 b. Aspartame  
 c. Saccharin  
 d. Sucrolose
7. Which one of the following is a morning after pill?  
 a. Norethindrone  
 b. Mifepristone  
 c. Bithional  
 d. Ethynylestradiol
8. Detergents are known to pollute rivers. However detergents can be made biodegradable and pollution free by taking  
 a. cyclic hydrocarbon chain  
 b. shorter hydrocarbon chain  
 c. unbranched hydrocarbon chain  
 d. hydrocarbon with more branching
9. The compound Acetyl salicylic acid is used as/a  
 a. Antiseptic  
 b. Antibiotic  
 c. Analgesic  
 d. Pesticide
10. An example of antioxidant is  
 a. Butylated hydroxyanisole  
 b. Aspirin  
 c. Penicillin  
 d. Chloramphenicol
11. Define the following terms.  
 i. Chemotherapy      ii. Antipyretics      iii. Antagonists  
 iv. Receptors      v. Analgesics      vi. Tranquilizers      vii. Agonists
12. How are antiseptics different from analgesics? Give an example of each.
13. What are the main constituents of Dettol?
14. Is phenol an antiseptic or a disinfectant? Comment.
15. What are antibiotics? List two major classes of antibiotics with an example of each class.
16. Low level of noradrenaline is the cause of depression. What type of drug is needed to cure this problem? Name two such drugs.
17. Name one medicinal compound that is used to treat  
 i. Hypertension      ii. General body pain      iii. Prevent heart attack



18. Differentiate between soaps and synthetic detergents.
19. Write a note on different types of soaps.
20. Explain the following using suitable example.
  - i. Cationic detergents
  - ii. Anionic detergents
  - iii. Non ionic detergents
21. What are the three types of antimicrobials? Explain.
22. What is meant by saponification? Explain the cleaning action of soap.
23. What are barbiturates?
24. What are drugs? How are they classified?
25. What are competitive and non competitive inhibitors? Explain their action on enzymes.
26. Why do antihistamines like Dimetane, Seldane not affect the secretion of acid in the stomach?
27. Describe the following example with one suitable example
  - a. Non ionic detergents
  - b. Food preservatives
  - c. Disinfectants
28.
  - i. What are analgesics?
  - ii. How are they classified?
  - iii. When are they commonly recommended?
29. State the reason in each of the following cases.
  - i. Soaps do not work well in hard water.
  - ii. Synthetic detergents are better than soaps.
30. What is meant by broad spectrum antibiotic?
31. Explain the following terms giving an example.
  - i. Antacids
  - ii. Sweetening agents
32. What are antiseptics? Give one example
33. What are food preservatives? Name two food preservatives.
34. Differentiate between disinfectants and antiseptics.

- 35.i. What class of drugs is ranitidine?
- ii. If water contains dissolved  $\text{Ca}^{2+}$  ions, out of soap and synthetic detergent, which will you use for cleaning clothes?
  - iii. Which of the following is an antiseptic 0.2% phenol or 1% phenol?
36. i. Define antihistamine with an example/
- ii. Which one of the following is an antibiotic  
Morphine , Equanil , Chloramphenicol , Aspirin
  - iii. Why is the use of aspartame limited to cold foods and drinks?
37. a. Write the products obtained when D-Glucose reacts with  $\text{NH}_2\text{OH}$ .
- b. Amino acids show amphoteric behaviour. Why?
  - c. Vitamin C cannot be stored in our body. Why?
38. a. Why is it not advisable to take sleeping pills without consulting doctor?
- b. What are tranquilizers? Give two examples.