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**SUBJECT CODE NO:- 2004**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y Sem. V**  
**EXAMINATION JUNE / JULY 2022**  
**Chemistry Paper –XIV**  
**(Organic Chemistry)**

[Time: 1:53 Hours]

[Max. Marks:50]

Please check whether you have got the right question paper.

- N.B a. All questions are compulsory
- Q.1 A. A compound having molecular formula  $C_9H_{11}Br$  showed the following signals in PMR data.  $\delta 2.25 (M, 2H), \delta 2.75 (t, 2H), \delta 3.38 (t, 2H), \delta 7.22 (s, 5H)$   
Assign the structure of the compound. 10
- B. How will you synthesize the following from ethyl acetoacetate 10
1. Succinic acid
  2. N-Butyric acid
  3. Crotonic acid
- OR
- A. Predict the following compounds on the basis of  $^1H$  NMR spectroscopy. 10
1. Ethyl alcohol
  2. Acetaldehyde.
- B. Discuss the manufacture of soyaben oil by solvent extraction method. 10
- Q.2 A. Discuss the synthesis of glycine, propionic acid and barbuturic acid from diethyl malonate. 10
- B. How will you prepare the following from methyl magnesium bromide. 10
1. t-butyl alcohol
  2. Propane
  3. Acetic acid.
- OR
- A. Write a short notes on (any four) 20
1.  $^1H$  NMR spectrum of toluene
  2. Coupling constant
  3. Organizine compound
  4. Keto-enol tautomerism
  5. Claisen condensation with mechanism
  6. Iodine value.
- Q.3 Chose the correct option for the following. 10
1. Ethyl bromide molecule shows-----
    - a. Two types of PMR peaks.
    - b. One type of PMR peaks

- c. Both 'a' and 'b'  
d. None of these
2. The proton (s) with similar environment known as-----  
a. Equatorial protons  
b. Equivalent protons  
c. Axial protons  
d. None of these
3. When external magnetic field is opposed by induced magnetic field this effect is known as \_\_\_\_\_  
a. Deshielding effect  
b. Shielding effect  
c. Mesomeric effect  
d. Inductive effect
4. Chemical shift of promatic proton is \_\_\_\_\_  
a.  $\delta 3.7$  to  $4.3$   
b.  $\delta 3$  to  $4$   
c.  $\delta 1$  to  $3.6$   
d.  $\delta 6$  to  $9$
5. When methyl magnesium bromide on the reaction with sylphur gives \_\_\_\_\_  
a. Ethanethiol  
b. Ethylalcohol  
c. Diethyl thioether  
d. None of these
6. The product formed during Reformatsky reaction is \_\_\_\_\_  
a.  $\alpha$  - hydroxy ester  
b.  $\beta$  - hydroxy ester  
c. Both 'a' and 'b'  
d. None of these
7. Acetoacetic ester on heating with urea gives \_\_\_\_\_  
a. 4- methyl uracil  
b. Uric acid  
c. Acetone  
d. Benzophenone
8. The acidity of active  $\alpha$  - hydroxy atom in ethyl acetoacetate is due to \_\_\_\_\_  
a. Mesomeric effect  
b. Resonance effect  
c. -I effect  
d. +I effect
9. Oil on reaction with alcoholic KOH give \_\_\_\_\_  
a. Glycerol and soap  
b. Glycerol and fatty acid  
c. Ethanol and fatty acid  
d. None of these
10. Detergent in made up of two groups they are \_\_\_\_\_  
a. Hydrophobic and hydrobiotic  
b. Hydrophobic and hydrophilic

- c. Hydrophobic and hydrophilic
- d. None of these.