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SUBJECT CODE NO: - Y-2004
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. (PATTERN-2013) T.Y. (SEM V)
Examination April / May - 2024
Chemistry Paper -XIV (Organic Chemistry)

[Time: 1:30 Hours]

[Max. Marks: 50]

Please check whether you have got the right question paper.

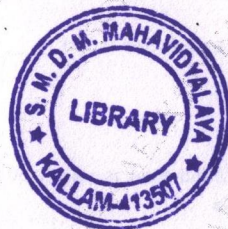
N. B

1) All questions are compulsory.

- Q.1** A] Deduce the structure of the Compound having molecular formula $C_9H_{10}O_2$ and Spectral data as δ 2.5 (5, 3H) 3.8 (5,3H), 6-9 (d, $J=8Hz$, 2H), 7.8 (d, $J=8Hz$, 2H) 10
- B] What is Keto-enol tautomerism and explain the Claisen condensation with mechanism 10

OR

- A] How many sets of equivalent Protons are present in the following Compounds? 10
- 1] Acetone
 - 2] Isopropyl alcohol
 - 3] 1,4-Dimethyl benzene
 - 4] Cyclohexane
 - 5] 1, 2-dibromo ethane.
- B] Explain the following terms 10
- 1] Iodine value
 - 2] Natural fats.



- Q.2** A] Starting from acetoacetic ester give a reaction scheme for Synthesising each of the following 10
- 1) Acetone
 - 2) Acetyl acetone
 - 3) 4-methyl Uracil.
- B] How will you bring the following transformation by using organometallic Compound. 10
- 1) Dry \longrightarrow iceacetic acid
 - 2) Formaldehyde \longrightarrow ethanol
 - 3) Hydrogen cyanide \longrightarrow Acetaldehyde

OR

B] Write a short note on any four of the following.

20

- 1) Coupling constant
- 2) Saponification
- 3) Sodium alkyl sulphonate
- 4) Acid Value
- 5) Spin-Spin Splitting
- 6) Organo zinc compounds.



Q.3 Choose the correct option

10

1] Fats and oils are

- A] Monoester of glycerol
C] Diester of glycerol

- B] Triester of glycerol
D] Diester of glycol

2] Ketone react with Grignart reagent to form an addition product which on hydrolysis gives a

- A] Primary alcohol
C] Tertiary alcohol

- B] Secondary alcohol
D] Aldehyde

3] Benzaldehyde molecule shows _____ PMR signals

- A] Three
C] six

- B] one
D] Two

4] Which of the following is not organo metallic compound?

- A] CH_3CooNa
C] Nacl

- B] CaCO_3
D] All of these.

5) Which substance is use as a standard for recording chemical shift?

- A] Tetramethyl silane
C] Dimethyl silane

- B] Silicone
D] Trimethyl silane

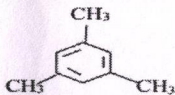
6] Methyl group attached to electronegative atom PMR signal will occur

- A] unchange b] upfield C] downfield D] Cannot say

7] Enol form of ethyl acetoacetate contains _____ pi (π) bond

- A] Three B] TWO C] one D] Four

8] How many NMR signals are expected for the following compound



- A] Five B] TWO C] Three D] four

9] Malonic ester undergoes Condensation with urea in the presence of sodium ethoxide Gives .

- A] Barbituric acid B] Butyric acid
C] Butanoic acid D] Butanol

10. The degree of unsaturation of a fat can be determined by means of its.

- A] Iodine number B] Octane number
C] Saponification number D] Melting point

