

2023
JHARGRAM RAJ COLLEGE
CHEMISTRY

TIME: 2 HOUR

M. Sc 1st SEMESTER INTERNAL EXAMINATION

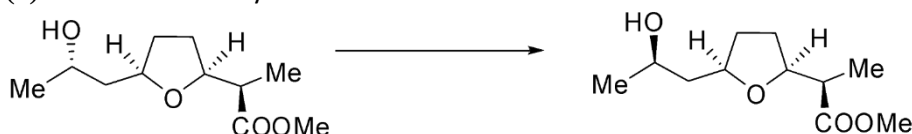
F. M: 40

Paper: CEM-101

- (1) Show that if potential energy is an even function then wave function for this system must belong to a definite parity.
- (2) Write down the expression of rotational partition function for hydrogen molecule.
- (3) Give an example of a function which is continuous but not differentiable.
- (4) What are the distinctive features of canonical, micro canonical and grand canonical ensembles.?
- (5) Comment on the SI unit and dimension of thermal de-Broglie's wavelength 5 × 2 = 10

Paper: CEM-102

- (1) Thermal [1,5]-hydrogen shift is facile but [1,3]-hydrogen shift is not observed.
- (2) Write down the synthesis of folic acid and mention its use.
- (3) Write down the synthesis of folic acid and mention its use.



- (4) Suggest an experimental fact that indicates the presence of propyl group at position 2 of Piperidine ring in coniine.
- (5) Under thermal condition ($\pi_s^2 + \pi_a^2$) cycloaddition reaction does not occur, but ketenes can easily undergo (2+2) cycloaddition reaction in concerted ($\pi_s^2 + \pi_a^2$) pathway. Explain. 5 × 2 = 10

Paper: CEM-103

- (1) Why oxy-Hemerythrin undergoes strong anti-ferromagnetic coupling than its deoxy form?
- (2) What do you mean by Hall effect and Hall co-efficient?
- (3) In between DPA & NAPA which one has high LD₅₀ value and why?
- (4) Define 'soret' band and compare it with the 'MLCT' band found in haemoglobin.
- (5) What will be the result of the product of C₂(X) C₂(Y)? 5 × 2 = 10

Paper: CEM-104

- (1) What do you mean by curing?
- (2) Define with example of simple and complex carbohydrate.
- (3) Give two examples of water soluble and insoluble vitamins?
- (4) What is dietary fiber? Give its source.
- (5) What do you mean by Glycemic Index? 5 × 2 = 10

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TIME: 2 HOUR M. Sc 1st SEMESTER INTERNAL EXAMINATION

F. M: 40

Paper: CEM-101

- (6) Show that if potential energy is an even function then wave function for this system must belong to a definite parity.
- (7) Write down the expression of rotational partition function for hydrogen molecule.
- (8) Give an example of a function which is continuous but not differentiable.
- (9) What are the distinctive features of canonical, micro canonical and grand canonical ensembles.?
- (10) Comment on the SI unit and dimension of thermal de-Broglie's wavelength $5 \times 2 = 10$

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