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**BR—176—2016**

**FACULTY OF SCIENCE**

**M.Sc. (Fourth Semester) EXAMINATION**

**OCTOBER/NOVEMBER, 2016**

**(Revised Course)**

**ORGANIC CHEMISTRY**

**Paper (CH-542/2)**

**(Bio-organic and Green Chemistry)**

**(Saturday, 19-11-2016)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—50*

*N.B. :— (i) All questions are compulsory.*

*(ii) Figures to the right indicate full marks.*

1. Offer explanation for the following (any *five*) : 10

(a) Structure and properties of m-RNA and t-RNA.

(b) Role of PTC in Darzen reaction.

(c) Types of Ionic liquids.

(d) Principles of Green Chemistry.

(e) Microwave effects according to reaction medium.

(f) Diastereo and enantio-selectivity of enzymes.

(g) Use of PTC in Wittig reaction.

(h) Hydrogenation reaction in neutral ionic liquid.

2. Offer explanation for the following (any *four*) : 10

(i) Synthesis of Nucleosides.

(ii) Explain the use of ultrasound in various reactions.

P.T.O.

- (iii) Microwave assisted Hofmann elimination reaction.
- (iv) Structure and properties of uracil and thiamine.
- (v) PTC in N-alkylation and S-alkylation.
- (vi) Explain with suitable example biochemical oxidation.
3. Solve any *two* of the following : 10
- (i) Explain Double-helix structure of DNA by Watson and Crick.
- (ii) Explain the use of ultrasound in oxidation and substitution reaction.
- (iii) Explain production of penicillin using microorganism.
4. Answer the following (any *two*) : 10
- (i) Explain Michael-Menten equation.
- (ii) Explain solvent free solid-solid phase transfer catalyst (PTC).
- (iii) Explain reaction in acidic ionic liquid.
5. (A) Select the *correct* alternative from the following : 5
- (i) ..... of the following bases is not present in DNA.
- (a) Adenine (b) Cytosine
- (c) Uracil (d) Guanine
- (ii) ..... enzyme convert sucrose into glucose.
- (a) Recemose (b) Pentase
- (c) Invertase (d) Esterase
- (iii) The ultrasound frequencies for inert of chemical reaction is .....
- (a) 2-20 kHz (b) 2-10 kHz
- (c) 20-100 kHz (d) 10-1000 kHz

- (iv) Concept of atom economy was developed by ..... .
- (a) Bary-Frost (b) Joseph-Simon
- (c) T-Remark (d) None of these
- (v) ..... ionic liquids are excellent solvents for Dials-Alder reaction.
- (a) Acidic (b) Basic
- (c) Neutral (d) None of these
- (B) Write short notes on (any *two*) : 5
- (a) Induced fit mechanism
- (b) Concept of atom economy
- (c) Ultrasound assisted :
- (i) Addition reaction
- (ii) Substitution reaction.