

**PARUL UNIVERSITY**  
**PARUL INSTITUTE OF APPLIED SCIENCES**  
**MID SEMESTER INTERNAL EXAMINATION, APRIL 2017**  
**M. Sc. Semester II**  
**Subject: Chemistry**

Paper Code: 11205151

Title of the paper: Organic Chemistry-II

Date: 10/04/2017

Time: 12.30 p.m. to 02.00 p.m.

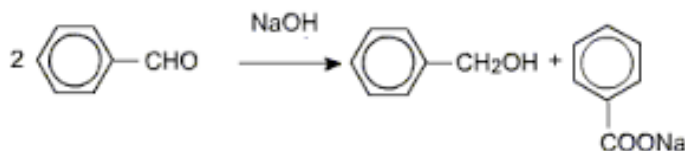
Maximum Marks: 40

Instructions:

- All questions are compulsory and options are given in first and second question only.
  - Numbers to the right of question indicate the marks of respective question.
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**Q. 1** Attempt any one question of the following. **(08)**

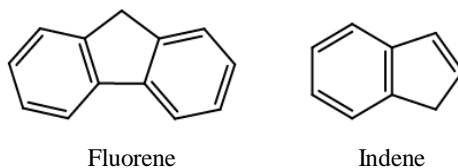
- Draw Frost circle diagrams for cycloheptatriene, cyclopentadiene, cyclooctatetraene and benzene.
- Explain following Cannizzaro reaction with mechanism.



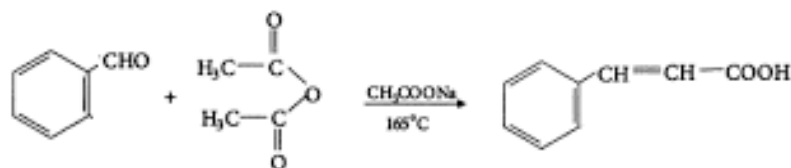
Also explain intramolecular Cannizzaro reaction with example.

**Q. 2** Attempt any three questions of the following. **(12)**

- Explain why the following compounds will lose protons easily.



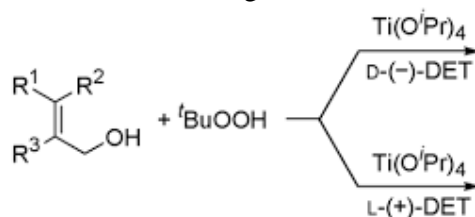
- Explain why cyclopentadienyl anion is aromatic and its cation is antiaromatic.
- Write a full account on fullerenes.
- Explain partial bond fixation in phenanthrene.
- Give mechanism of Perkin reaction.



**Q. 3** Do as directed. Attempt all five questions. **(05)**

- Draw structure of [16] annulene.

(ii) Give products for the following reaction



(iii) Draw structures of thiophene and pyrrole.

(iv) Based on NMR data when is a compound called as diatropic?

(v) What is the shape of cyclooctatetraene?

**Q. 4** Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

- MCQ 1 Reformatsky reaction makes use of .....metal as catalyst.  
 (A) Zn (B) Cu  
 (C) Ni (D) Na
- MCQ 2 Which of the following is a self redox reaction?  
 (A) Cannizzaro reaction (B) Claisen condensation  
 (C) Wittig reaction (D) Aldol condensation
- MCQ 3 The products of Cannizzaro reaction are .....  
 (A) Carboxylic acid+ 1° alcohol (B) Carboxylic acid+ 2° alcohol  
 (C) Only carboxylic acid (D) Only 1° or 2° alcohol
- MCQ 4 Stobbe condensation is a reaction between a ketone and .....  
 (A) dialkylmalonate (B) dialkylsuccinate  
 (C) dialkylphthalate (D) dialkyloxalate
- MCQ 5 Bischler Napieralski reaction is used to prepare .....  
 (A) quinoline (B) isoquinoline  
 (C) pyrimidine (D) pyrrole
- MCQ 6 Dieckmann Condensation is intramolecular condensation of ..... to form cyclic product.  
 (A) diamide (B) diol  
 (C) diester (D) diketone
- MCQ 7 Perkin reaction forms ..... from aromatic aldehydes.  
 (A) hydroxy acids (B) cinnamic acids  
 (C) haloacids (D) ketoacids
- MCQ 8 Wittig reaction is used to convert ketone into .....  
 (A) alkane (B) alkene  
 (C) alkyne (D) alkylhalide
- MCQ 9 A compound with 4n π electrons will be .....  
 (A) aromatic (B) antiaromatic  
 (C) nonaromatic (D) none of the above
- MCQ 10 Compounds which show outer protons downfield and inner protons upfield in NMR are called ..... in nature.  
 (A) diatropic (B) paratropic  
 (C) atropic (D) enantiotropic
- MCQ 11 The unit for NMR shift is .....  
 (A) nm (B) ppm  
 (C) gm/L (D) cm
- MCQ 12 Cyclopropyl cation will be ..... in nature.  
 (A) aromatic (B) antiaromatic

- (C) nonaromatic (D) none of the above
- MCQ 13 The push-pull effect of electrons in substituted cyclobutadiene is called as .....
- (A) annelation effect (B) captodative effect  
(C) Resonance effect (D) Inductive effect
- MCQ 14 The phenomenon in which a ring in a fused system gives up part of their aromaticity to the adjacent ring is called as .....
- (A) annelation effect (B) captodative effect  
(C) Resonance effect (D) Inductive effect
- MCQ 15 The necessary condition for aromaticity is .....
- (A) molecule must be planar (B) possess  $(4n+2)\pi$  electrons  
(C) possess alternate double and single bonds (D) all of the above

-- End of Paper--