

Question Paper

Exam Date & Time: 09-Jun-2018 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES
END SEMESTER THEORY EXAMINATIONS - JUNE 2018

PROGRAM: BPHARM SEMESTER 2

DATE: 09/06/2018

TIME: 10:00 AM - 1:00 PM

Pharmaceutical Organic Chemistry-I [PCH-BP202T]

Marks: 75

Duration: 180 mins.

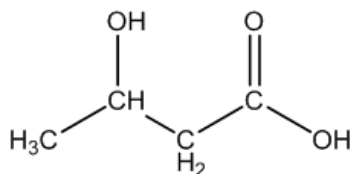
I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Phenanthrene is an example for the following class of organic compound: (1)
[benzenoid aromatic](#) [non-benzenoid aromatic](#) [alicyclic ring structure](#) [branched chain alkane](#)

- 2) Which one of these is the correct IUPAC name of the following compound? (1)



[2-hydroxybutanoic acid](#) [3-hydroxybutanoic acid](#) [2-hydroxypropanoic acid](#) [1-carboxypropan-2-ol](#)

- 3) What kind of structural isomerism is existing between butane and isobutene? (1)
[positional isomerism](#) [functional isomerism](#) [tautomerism](#) [chain isomerism](#)

- 4) What is the percentage of "s-character" in sp² hybridization? (1)
[33%](#) [66%](#) [75%](#) [50%](#)

- 5) What is the hybridization state of nitrogen in hydrogen cyanide? (1)
[sp³](#) [sp²](#) [sp](#) [not hybridized at all](#)

- 6) One of the following compounds do not undergo aldol condensation. (1)
[cyclopentanone](#) [Propanaldehyde](#) [formaldehyde](#) [acetone](#)

- 7) Umpolung reaction involves: (1)
[polarity inversion](#) [polarity separation](#) [condensation](#) [non-polar reaction](#)

- 8) The IUPAC name of the paraldehyde is: (1)
[2,2,2-trichloroethane-1,1-diol](#) [1,3,5-trimethyl trioxane](#) [4-hydroxy-3-methoxybenzaldehyde](#) [2,4,6-trimethyl trioxane](#)

- 9) Which of the following statements regarding S_N reactions is wrong: (1)
[S_N1 reactions proceed via carbocation intermediates](#) [The S_N2 mechanism does not involve an intermediate](#) [The S_N1 reaction is a bimolecular](#) [The S_N2 reaction involves inversion of configuration](#)

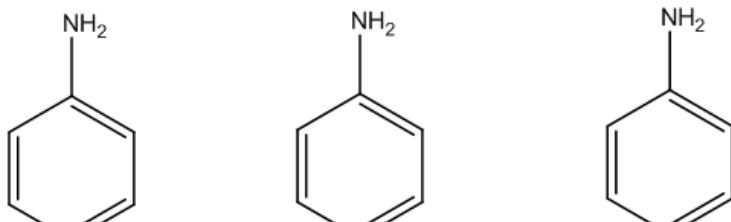
- 10) E1 is favoured over S_N1 due to one of the following conditions : (1)
[base strength](#) [temperature](#) [alkyl halide concentration](#) [temperature and base strength](#)

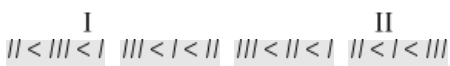
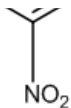
- 11) One of the following statements regarding E1 reactions is wrong. (1)
[Reactions by the E1 mechanism are always bimolecular](#) [tertiary alkyl halides are the best substrates for E1 reactions](#) [E1 mechanism follows a two-step mechanism](#) [E1 reaction mechanism involves carbocation intermediate.](#)

- 12) The named reaction by which an α, β unsaturated acid can be produced is: (1)
[Benzoin condensation](#) [Perkin reaction](#) [Cannizzaro reaction](#) [Aldol condensation](#)

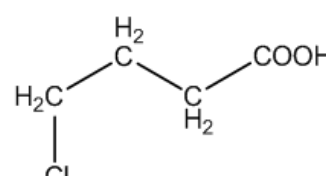
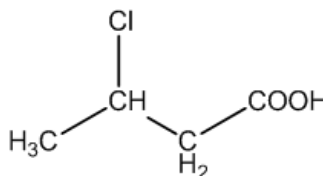
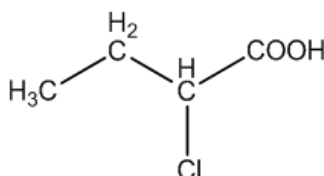
- 13) The following compound has cage like structure: (1)
[paraldehyde](#) [cinnamaldehyde](#) [hexamine](#) [amphetamine](#)

- 14) The correct increasing order of basic strength for the following compounds is: (1)





- 15) One of the following molecules is a polar: (1)
[Cl₂C=CCl₂](#) [CCl₄](#) [CHCl₃](#) [cyclohexane](#)
- 16) One of the following compounds is used as hypnotic and sedative: (1)
[paraldehyde](#) [cinnamaldehyde](#) [hexamine](#) [amphetamine](#)
- 17) The reaction between ethyl chloride and dilute sodium hydroxide is known as: (1)
[elimination reaction](#) [nucleophilic addition](#) [free radical substitution](#) [nucleophilic substitution](#)
- 18) One of the following is not a nucleophile: (1)
[ammonia](#) [cyanide ion](#) [hydrogen](#) [water](#)
- 19) Which one of the following carboxylic acid is strongly acidic? (1)



- 20) In which of the following reactions Anti-Markovnikov's rule is followed (1)
[elimination reaction](#) [nucleophilic addition](#) [free radical reaction](#) [nucleophilic substitution](#)

II Long Answers

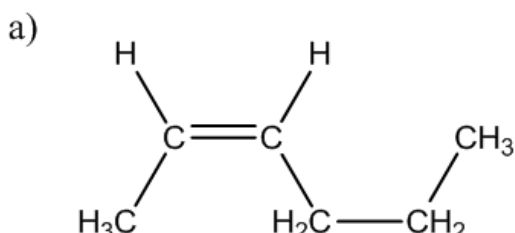
Answer all the questions.

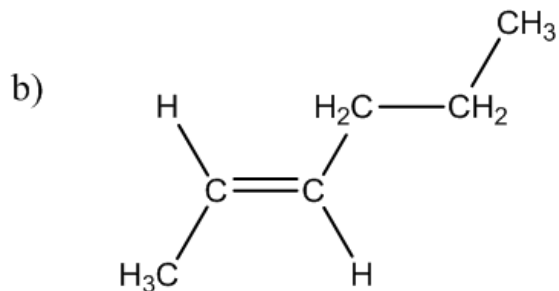
- 1) Discuss any two reactions of conjugated dienes. (5)
- A)
- B) Give the equations for the following reactions: (5)
i) ozonolysis of alkenes
ii) addition of HBr to alkenes in the presence of H₂O₂
- 2) Write a brief note on E1 vs E2 reactions. (5)
- A)
- B) Discuss the effect of substituents on acidity of carboxylic acids. (5)

III Short Answers

Answer all the questions.

- 1) Draw the structures for the following IUPAC names: 1M x 5 = 5M (5)
a) 4-Isopropyl-3-Methylheptane
b) 2,2-Dimethylbutane
c) Vinyl alcohol
d) 1,3-Cyclohexanediene
e) 1-Ethyl-2-Methylcyclopentane
- 2) Define hybridization. Discuss in brief the state of hybridization in alkenes. (5)
- 3) Write the IUPAC name and indicate the most stable compound of the following. Justify your answer. (5)





- 4) Discuss in brief the following terms with an example: (5)
 a) hyperconjugation
 b) Stability of conjugated dienes.
- 5) Explain with mechanism the Perkin reaction. (4)
- A)
 B) Why benzoic acid ($pK_a = 4.16$) is strongly acidic than acetic acid ($pK_a = 4.75$)? (1)
- 6) Give the structure and uses of the following: (5)
 a) Chlorobutanol
 b) Vanillin
 c) Chloralhydrate
 d) benzyl benzoate
 e) Propylene glycol
- 7) What is the difference between Cannizzarao and Crossed Cannizzarao reaction? Explain with an example. (5)

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