

# Question Paper

Exam Date & Time: 05-May-2018 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES

END SEMESTER THEORY EXAMINATIONS - MAY 2018

PROGRAM: BPHARM SEMESTER 2

DATE: 05/05/2018

TIME: 09:30 AM - 12:30 PM

Pharmaceutical Organic Chemistry-I [PCH-BP202T]

Marks: 75

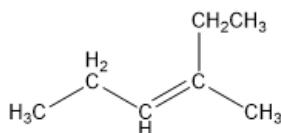
Duration: 180 mins.

## I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Monocyclic, completely conjugated polyenes are called as (1)  
[alicyclic compounds](#) [spiro compounds](#) [heterocyclics](#) [annulenes](#)
- 2) Pyridine is an example for the following class of organic compound (1)  
[homocyclic](#) [homocyclic aromatic](#) [heterocyclic aromatic](#) [heterocyclic](#)  
[alicyclic](#) [alicyclic](#)
- 3) Which one of these is the correct IUPAC name of the following compound? (1)



- 4) What is the percentage of "p-character" in sp<sup>3</sup> hybridization? (1)  
[25%](#) [50%](#) [75%](#) [66.33%](#)
- 5) What is the hybridization state of two carbons in Acetic acid? (1)  
[sp<sup>3</sup> and sp<sup>2</sup>](#) [sp<sup>2</sup> and sp](#) [sp<sup>3</sup> and sp](#) [sp<sup>3</sup> and sp<sup>3</sup>](#)
- 6) A mixture of benzaldehyde and formaldehyde on heating with aqueous NaOH solution gives: (1)  
[sodium benzoate and methyl alcohol](#) [sodium benzoate and sodium formate](#) [benzyl alcohol and methanol](#) [benzyl alcohol and sodium formate](#)
- 7) The following named reaction is an example for Umpolung reaction: (1)  
[Cannizzarao reaction](#) [Benzoin condensation](#) [Aldol condensation](#) [Claisen Schmidt reaction](#)
- 8) One of the following compounds is used as hypnotic and sedative: (1)  
[paraldehde](#) [formaldehyde](#) [cinnamaldehyde](#) [hexamine](#)
- 9) The composition of Borsches reagent is : (1)  
[2,4-Diethylphenyl hydrazine](#) [2,4-diaminophenyl hydrazine](#) [2,4-Dimethylphenyl hydrazine](#) [2,4-Dinitrophenyl hydrazine](#)
- 10) One of the following compounds is used in the treatment of scabies: (1)  
[methyl salicylate](#) [acetyl salicylic acid](#) [benzyl benzoate](#) [lactic acid](#)
- 11) The following compound gives blue colour with ferric chloride: (1)  
[methyl salicylate](#) [salicylic acid](#) [benzyl benzoate](#) [lactic acid](#)
- 12) Identify the most acidic compound: (1)  
[acetic acid](#) [benzoic acid](#) [phenol](#) [chloro acetic acid](#)
- 13) One of the following statements regarding S<sub>N</sub>2 reaction is wrong: (1)  
[S<sub>N</sub>2 reactions are bimolecular](#) [S<sub>N</sub>2 reactions involves intermediates formation](#) [S<sub>N</sub>2 mechanism occurs in one step](#) [Primary alkyl halides are the best substrates for S<sub>N</sub>2 reactions](#)
- 14) Which is the most reactive compound towards the S<sub>N</sub>1 mechanism: (1)  
[H<sub>2</sub>C=CHCH<sub>2</sub>Br](#) [H<sub>2</sub>C=CHCHBrCH<sub>3</sub>](#) [H<sub>3</sub>C-CH<sub>2</sub>CH<sub>2</sub>Br](#) [H<sub>3</sub>C-CH<sub>2</sub>CHBrCH<sub>3</sub>](#)
- 15) Which carbon-halogen bond has the greatest polarity? (1)

- 15) Which carbon-halogen bond has the greatest polarity: [C-Br](#) [C-Cl](#) [C-F](#) [C-I](#) (1)
- 16) Chemically iodoform is: [diiodo methane](#) [triiodo methane](#) [monoiodo methane](#) [triiodo ethane](#) (1)
- 17) Which named reaction is the best to synthesize benzyl alcohol with a yield of above 90%? [Cannizzarao reaction](#) [Crossed Cannizzarao reaction](#) [Crossed aldol reaction](#) [Perkin reaction](#) (1)
- 18) Identify the most basic compound: [methylamine](#) [aniline](#) [para-methoxy aniline](#) [para-nitro aniline](#) (1)
- 19) One of the following amine is used as CNS stimulant: [Hexamine](#) [Ethanolamine](#) [Amphetamine](#) [Tryptamine](#) (1)
- 20) Gualtheria oil is also known as: [sodium salicylate](#) [methyl salicylate](#) [ethyl salicylate](#) [dimethyl phthalate](#) (1)

## II Long Answers

### Answer all the questions.

- 1) 1a) Discuss with an example, along with mechanism, the electrophilic addition of conjugated dienes. 05 M (10)
- 1b). Give any one reaction with an equation for the following mechanisms: 05 M  
i) concerted reaction b) dehydration reaction
- 2) 2a). Give the mechanism and evidences for E2 reactions. 05 M (10)
- 2b). Explain with mechanism - Cannizzarao mechanism. 05 M

## III Short Answers

### Answer all the questions.

- 1) 1. Draw the structures for the following IUPAC names. 1Mx 5 = 5 M (5)
- a) 2,4,4-Trimethylheptane b) 5-Bromo-2-Methyl-4-isopropylnonane
- c) Allyl alcohol d) But-2-ene
- e) 1-Bromo-3-ethyl-5-methylcyclohexane
- 2) 2a). What is hybridization? Discuss the hybridization in alkanes. 3 M (5)
- 2b). Why acetic acid is weaker than formic acid? 2 M
- 3) Explain with reactions, the mechanism for the chlorination of cyclohexane. (5)
- 4) 4. Define the following reactions with an example. (5)
- a) Diels-Alder reaction b) Markovnikov's rule of addition
- 5) What is Claisen-Schmidt reaction? Discuss with an example. (5)
- 6) 6a) Discuss the mechanism, kinetics, stereochemistry involved in SN2 reactions. 3M (5)
- 6b) Why polar aprotic solvents are preferred for SN2 reactions? 2M
- 7) Give the structure and uses of the following compounds: 5x1M = 5M (5)
- a) methyl salicylate b) paraldehyde
- c) ethyl chloride d) glycerol
- e) lactic acid

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