

Question Paper

Exam Date & Time: 16-May-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal College of Pharmaceutical Sciences
B.Pharm Semester II, End Semester Examination

Pharmaceutical Organic Chemistry I (Theory) [PCH-BP202T-S3]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Which of the following reaction is not shown by ketones? (1)

[Reaction with HCN](#)
[Reaction with NaHSO₃](#)
[Reaction with 2,4-dinitrophenyl hydrazine](#)
[Reaction with Fehling solution](#)

- 2) When propanal reacts with 2-methylpropanal in presence of NaOH, four different products are formed. The reaction is known as (1)

[Aldol condensation](#)
[Crossed aldol condensation.](#)
[Cannizzaro's reaction](#)
[Perkin condensation reaction](#)

- 3) The polar nature of carbonyl group in aldehydes and ketones is due to _____ (1)

[very less electronegativity difference](#)
[very large electronegativity difference](#)
[presence of hydrogen bonding](#)
[presence of sp hybridized characters in carbonyl compound](#)

- 4) Benzaldehyde refluxed with ethanolic potassium cyanide to form (1)

[Benzoic acid](#)
[Benzoin ketone](#)
[Benzoin](#)
[Diphenyl alcohol](#)

- 5) Which of the following compounds has highest reactivity in nucleophilic addition reaction? (1)

[methanal](#)
[ethanal](#)
[butanone](#)
[propanone](#)

- 6) What is the correct order of reactivity of the following towards nucleophilic addition? (1)

[Methanal > Ethanal > Acetone](#)

[Acetone > Ethanal >](#)

[Methanal](#)

[Methanal > Acetone > Ethanal](#)

[Ethanal > Methanal >](#)

[Acetone](#)

- 7) Which of the following is least reactive towards a nucleophilic attack? (1)

[Acetaldehyde](#)

[Butanone](#)

[Diisopropyl ketone](#)

[Ditert-Butyl ketone](#)

- 8) IUPAC name for the following compound is. (1)



[Bicyclo\[3.2.1\] octane](#)

[Tricyclo\[3.2.1\]](#)

[Heptane](#)

[Bicyclo\[2.3.1\] octane](#)

[Bicyclo\[1.2.3\] nonane](#)

- 9) Nitrogen atom of amino group is hybridised (1)

[sp](#)

[sp²](#)

[sp³](#)

[sp³d](#)

- 10) Which of the following is not an example of a primary amine? (1)

[Methanamine](#)

[Ethylamine](#)

[Propanamine](#)

[Butanamide](#)

- 11) The halogenation of alkanes considered a chain reaction because (1)

[It occurs quickly](#)

[It occurs without the generation of intermediates](#)

[Each step generates the reactive intermediate that causes the next step to occur](#)

[The reaction allows long chains of halogenated alkanes to be formed](#)

- 12) In primary alkyl halides, carbon attached to the halogen atom is further attached to how many carbon atoms? (1)

[1](#)

[2](#)

[3](#)

[4](#)

- 13) In the addition of HX to a double bond, the hydrogen goes to the carbon that already has more hydrogens is a statement of (1)
- [Hund's rule](#)
[Markownikoff's rule](#)
[Huckel rule](#)
[Saytzeff's rule](#)
- 14) Which compound is least acidic? (1)
- [FCH₂CO₂H](#)
[ClCH₂CO₂H](#)
[BrCH₂CO₂H](#)
[ICH₂CO₂H](#)
- 15) Aspirin is an acetylation product of (1)
- [O-hydroxybenzoic acid](#)
[O-dihydroxybenzene](#)
[m-hydroxybenzoic acid](#)
[p-dihydroxybenzene](#)
- 16) Alkyl halides react with metallic sodium in dry ether producing? (1)
- [Alkanes with same number of carbon atoms](#)
[Alkanes with double number of carbon atoms](#)
[Alkenes with triple number of carbon atom](#)
[Alkenes with the same number of carbon atoms.](#)
- 17) Freon 12(CCl₂F₂) is used as a (1)
- [Local anaesthetic](#)
[Drycleaning agent](#)
[Refrigerant](#)
[Disinfectant](#)
- 18) Lucas test is used to determine the type of (1)
- [alcohols](#)
[acids](#)
[amines](#)
[carbohydrates](#)
- 19) Which of the following will give Ethanoic acid on acid hydrolysis? (1)
- [Ethyl acetate](#)
[Methyl propionate](#)
[Acetone](#)
[Lactic acid](#)
- 20) Which compound reacts most rapidly by an SN₁ mechanism? (1)
- [Methyl chloride](#)
[sopropyl chloride](#)
[Ethyl chloride](#)
[tert-Butyl chloride](#)

II Long Answers

Answer all the questions.

- 1) A. Explain position, chain, functional, metamerism and Tautomerism with suitable examples. (10)
B. Give the structure for the following IUPAC names.
a) 3-Bromo-2-methyl butanoic acid
b) 3-methylhex-3-ene
c) 3-methyl-4-chloropent-2-ene
d) 1,1 -dimethyl -3-cyclohexanol
e) 3-ethyl-4, 4-dimethylheptane. (5+5=10 Marks)
- 2) A. Explain the mechanism of E1 and E2 reactions. (10)
B. What type of hybridization is shown by alkanes? Describe the orbital structure of Methane . (5+5=10 Marks)

III Short Answers

Answer all the questions.

- 1) What is crossed Cannizzaro's reaction? Explain the mechanism with a suitable example. (5)
- 2) Write the structure and use for the following compounds. (5)
a) Hexamine b) Cinnamaldehyde c) Benzaldehyde d) Acetone e) Chloral hydrate
- 3) Compare the basicity of aliphatic and aromatic amines with suitable illustrations. (5)
- 4) Write any three preparation methods for primary amines. Explain carbylamine test for primary aromatic amines. (5)
(3+2=5 Marks)
- 5) Explain the reactions of alkyl halides with metals. (5)
- 6) Write the preparations of propanol and 2butanol from Grignard reagent. (5)
- 7) Write the structure IUPAC name and medicinal uses for the following compounds (5)
a) Iodoform b) Chlorobutanol c) Benzoic acid d) Aspirin

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