

Question Paper

Exam Date & Time: 08-May-2019 (09:30 AM - 12:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm Second Semester- End Semester Examination May 2019

Exam Date: 08-05-2019

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) One of the following compounds is an example for non-benzenoid aromatic: (1)

anthracene

benzene

azulene

naphthalene

2) Cyclopentane is an example for the following class of organic compound (1)

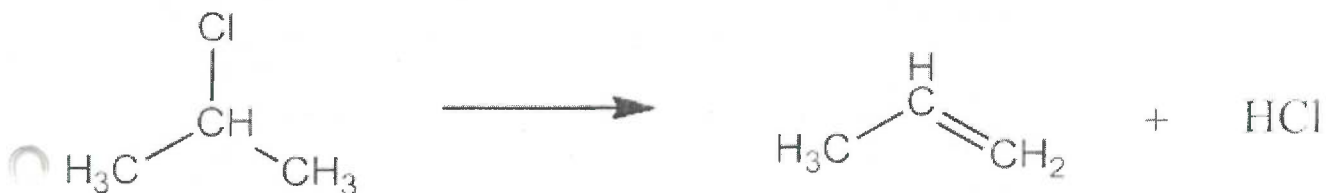
homocyclic alicyclic

homocyclic aromatic

heterocyclic aromatic

heterocyclic alicyclic

3) The following reaction is an example for: (1)



substitution reaction

addition reaction

elimination reaction

rearrangement reaction

4) One of the following alkyl halides is the best substrate for S_N1 reactions. (1)

isopropyl bromide

ethyl chloride

tertiary butyl bromide

3-bromo pentane

5) What is the hybridization state of two carbons in Acetic acid? (1)

sp³ and sp²

sp² and sp

sp³ and sp

sp³ and sp³

- 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)

paraldehyde

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

One of the following statements regarding SN2 reaction is wrong: (1)

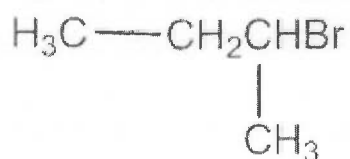
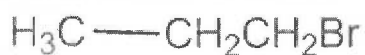
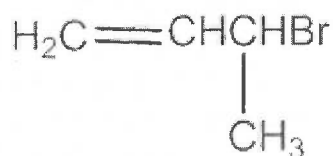
SN2 reactions are bimolecular

SN2 reactions involves intermediates formation

SN2 mechanism occurs in one step

Primary alkyl halides are the best substrates for SN2 reactions

14) Which is the most reactive compound towards the SN1 mechanism: (1)



15) Which carbon-halogen bond has the greatest polarity? (1)

C-Br

C-Cl

C-F

C-I

16) One of the most important industrial application of free radical addition to conjugated dienes (1) is one of the below:

Hydrogenation

Vulcanization of rubber

dehydration

reduction

17) Which named reaction is the best to synthesize benzyl alcohol with a yield of above 90%? (1)

Cannizzarao reaction

Crossed Cannizzaro reaction

Crossed aldol reaction

Reductive amination

18) Identify the most basic compound: (1)

methylamine

aniline

para-methoxy aniline

para-nitro aniline

19) Orientation of electrophilic addition to conjugated diene depends mainly on (1)

Pressure

Temperature

humidity

Catalyst

20) Gualtheria oil is also known as: (1)

sodium salicylate

methyl salicylate

ethyl salicylate

dimethyl phthalate

II Long Answers

Answer all the questions.

- 1) 1a) Discuss with an example, along with mechanism, the electrophilic (10)
addition of conjugated dienes. 5 Marks
1b) Explain the mechanism of E1 reaction with proper evidences.
2+3=5marks
- 2) 2a) Why acetic acid is weaker than formic acid whereas strongly (10)
acidic than benzoic acid? 3 Marks
2b) Explain with mechanism Cannizzaro mechanism. 5 Marks
2c) What are the effects of substituents on acidity of carboxylic
acids? Give an example. 2 Marks

III Short Answers

Answer all the questions.

- 1) Draw the structures for the following IUPAC names. 1Mark x 5 = 5 (5)
Marks
- 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 hybridisation in alkanes. 2 (5)
Marks
2b) Write the mechanism of ozonolysis. 3
Marks
- 3) Explain with reactions, the mechanism for the chlorination of (5)

ethane.

Define the following reactions with an example. (5)

- a) Diels-Alder reaction
- b) Markovnikov's rule of addition

Give an example for Claisen-Schmidt reaction. Discuss its mechanism. (5)

6a) Discuss the mechanism, kinetics, stereochemistry involved in SN2 reactions. 3 Marks (5)

6b) Why polar aprotic solvents are preferred for SN2 reactions? 2 Marks

7) Give the structure and uses of the following compounds: 1 Marks (5)
x 5 = 5 Marks

- a) oil of wintergreen
- b) paraldehyde
- c) benzyl benzoate
- d) dimethyl phthalate
- e) lactic acid

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