Makeup

Question Paper

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

MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm Second Semester- End Semester Examination June 2019
PCH-BP202T: Pharmaceutical Organic Chemistry-I
Date : 12 / 06 / 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) DMF is an example for which type of solvent? (1)

non-polar
polar protic
polar aprotic
none of the above

2) What is the percentage of "p-character" in sp2 hybridization? (1)

33%
50%
75%
66%

3) One of the following products will form when 1-bromobutane undergo S_N2 reaction with NaI. (1)

1-bromo-4-iodobutane
1-iodobutane
1-bromo-3-iodobutane
1-bromo-2-iodobutane

4) What is the hybridization state of carbon in CF4? (1)

sp2
sp
sp3
it is not hybridized

) What is the hybridization state of two carbons in ethanol? (1)

sp3-sp2
sp3-sp
sp2-sp2
sp3-sp3

) One of the following compounds will not undergo Cannizzarao reaction: (1)

formaldehyde

benzaldehyde

acetaldehyde

furfuraldehyde

7) Acetone in the presence of strong base undergoes: (1)

Benzoin condensation

Cannizzarao reaction

Aldol condensation

All the above reactions

8) 4-Hydroxy-3-methoxybenzaldehyde is the IUPAC name of: (1)

vanillin

cinnamaldehyde

paraldehyde

hexamine

9) Identify the most acidic compound: (1)

formic acid

benzoic acid

chloro acetic acid

acetic acid

10) One of the following statements regarding S_N1 reaction is wrong: (1)

S_N1 reactions are unimolecular

Tertiary alkyl halides are the best substrates for S_N1 reactions

The S_N1 mechanism occurs in one step

S_N1 reactions involve carbocation intermediate formation

11) A double bond can be introduced into a compound by which one of the following reactions? (1)

addition reactions

elimination reactions

dehydration reactions

elimination and dehydration reactions

12) One of the following compounds has trioxane ring in its structure: (1)

paraldehyde

vanillin

hexamine

chloralhydrate

13) Which one of the following compounds can be used in the treatment of scabies? (1)

chlorobutanol

propylene glycol

benzyl benzoate

methyl salicylate

Identify the most acidic compound: (1)

FCH_2COOH

$ClCH_2COOH$

$BrCH_2COOH$

ICH_2COOH

15) How many number of compounds will be formed from Crossed Cannaizzarao reaction? (1)

four

eight

six

two

16) One of the following is an example for pericyclic reaction mechanism: (1)

electrophilic addition

Diel's-Alder reaction

dehydration reactions

elimination reactions

17) Which one of the following is an application of inductive effect? (1)

bond length

dipole moment

strength of carboxylic acids

all of the above

18) Which of the following acids is expected to have the smallest pKa value? (1)

$CH_2ClCOOH$

CCl_3COOH

CF_3COOH

CH_3COOH

19) One of the following products will form when buta-1,3-diene reacts with ethylene: (1)

1-methyl hexane

n-hexane

cyclohexene

cyclohexane

20) The correct sequence of steps involved in the mechanism of Cannizzarao reaction is: (1)

nucleophilic attack, transfer of H^-, transfer of H^+

electrophilic attack OH^-, transfer of H^+ and transfer of H^-

c) transfer of H^+, nucleophilic attack and transfer of H^-

transfer of H^-, nucleophilic attack and transfer of H^+

II Long Answers

Answer all the questions.

1) Give any one example for the following reaction mechanisms: (10)

a) pericyclic reaction b) ozonolysis of alkenes

c) nucleophilic addition d) electrophilic addition

2) 2a) Discuss the mechanism and give any three evidences for S_N1 reaction. (10)

2b) List out suitable solvents for S_N1 and S_N2 reactions. Justify your answer with reason.

III Short Answers

Answer all the questions.

1) Draw the structures for the following IUPAC names: 1M x 5 = 5M (5)

a) 4-Ethyl-3-Methylheptane b) 1-Bromo-5-Chloro-2-pentanone

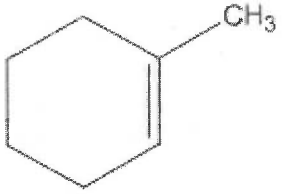
c) Tertiary butyl alcohol d) 2-Methylprop-1-ene

e) 1-Bromo-2-Methylcyclobutane

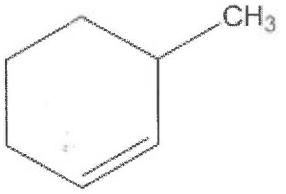
2) What are alkanes? Describe in detail, the hybridization state in alkanes. (5)

3) Write the IUPAC name and indicate the most stable compound of the following. Justify your answer. (5)

a)



b)



4) Discuss in brief, the stability of dienes with an example. (5)

5) Differentiate aldol and crossed aldol reaction with an example. Propose the mechanism for aldol reaction. (5)

6) 6a). Explain the effect of substituents on basicity of aliphatic amines. 3 M (5)

6b). Give the effect of stereochemistry in SN1 reactions with an example. 2 M

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

a) formaldehyde b) methyl salicylate

c) benzyl benzoate d) paraldehyde

e) cetosteryl alcohol