



Name : M.A. 019.3 clinical

Academic year : 0 1 2 3 4 5

Subject :

Date :

Student ID
0 0 0 0
1 1 1 1
2 2 2 2
3 3 3 3
4 4 4 4
5 5 5 5
6 6 6 6
7 7 7 7
8 8 8 8
9 9 9 9

Notes :

- Do not use a corrector
- Use black or blue pens or an HB pencil
- Make a mark that fills the circle completely
- Only one choice per question is allowed
- Do not wrinkle the paper or damage its corner
- For true or false questions, T = true, F = False

Example :

WRONG ○○○○✓

WRONG ○○○○⊗

WRONG ○○○○●

RIGHT ○○○○●

Examination form..... (A) (B) (C) (D) (E)

- | | | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| 1 TF
A ● C D E | 16 TF
A ● C D E | 31 TF
A B C D E | 46 TF
A B C D E | 61 TF
A B C D E |
| 2 TF
A ● C D E | 17 TF
A B ● D E | 32 TF
A B C D E | 47 TF
A B C D E | 62 TF
A B C D E |
| 3 TF
A B ● D E | 18 TF
A B ● D E | 33 TF
A B C D F | 48 TF
A B C D F | 63 TF
A B C D E |
| 4 TF
A ● C D E | 19 TF
A ● C D E | 34 TF
A B C D E | 49 TF
A B C D E | 64 TF
A B C D E |
| 5 TF
A B C ● E | 20 TF
A B C ● E | 35 TF
A B C D E | 50 TF
A B C D E | 65 TF
A B C D E |
| 6 TF
A ● C D E | 21 TF
● B C D E | 36 TF
A B C D E | 51 TF
A B C D E | 66 TF
A B C D E |
| 7 TF
● B C D E | 22 TF
● B C D E | 37 TF
A B C D E | 52 TF
A B C D E | 67 TF
A B C D E |
| 8 TF
A ● C D E | 23 TF
● B C D E | 38 TF
A B C D E | 53 TF
A B C D E | 68 TF
A B C D E |
| 9 TF
A B C ● E | 24 TF
A B C D E | 39 TF
A B C D E | 54 TF
A B C D E | 69 TF
A B C D E |
| 10 TF
A B C ● E | 25 TF
A B C D E | 40 TF
A B C D E | 55 TF
A B C D E | 70 TF
A B C D E |
| 11 TF
● B C D E | 26 TF
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A B C D E | 71 TF
A B C D E |
| 12 TF
A B ● D E | 27 TF
A B C D E | 42 TF
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A B C D E | 72 TF
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| 13 TF
● B C D E | 28 TF
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A B C D E |
| 14 TF
● B C D E | 29 TF
A B C D E | 44 TF
A B C D E | 59 TF
A B C D E | 74 TF
A B C D E |
| 15 TF
A B ● D E | 30 TF
A B C D E | 45 TF
A B C D E | 60 TF
A B C D E | 75 TF
A B C D E |

- | | | | | |
|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 76 TF
A B C D E | 91 TF
A B C D E | 106 TF
A B C D E | 121 TF
A B C D E | 136 TF
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| 77 TF
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A B C D E | 122 TF
A B C D E | 137 TF
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| 78 TF
A B C D E | 93 TF
A B C D E | 108 TF
A B C D E | 123 TF
A B C D E | 138 TF
A B C D E |
| 79 TF
A B C D F | 94 TF
A B C D E | 109 TF
A B C D E | 124 TF
A B C D E | 139 TF
A B C D E |
| 80 TF
A B C D E | 95 TF
A B C D F | 110 TF
A B C D F | 125 TF
A B C D F | 140 TF
A B C D F |
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A B C D E | 96 TF
A B C D E | 111 TF
A B C D E | 126 TF
A B C D E | 141 TF
A B C D E |
| 82 TF
A B C D E | 97 TF
A B C D E | 112 TF
A B C D E | 127 TF
A B C D E | 142 TF
A B C D E |
| 83 TF
A B C D E | 98 TF
A B C D E | 113 TF
A B C D E | 128 TF
A B C D E | 143 TF
A B C D E |
| 84 TF
A B C D E | 99 TF
A B C D E | 114 TF
A B C D E | 129 TF
A B C D E | 144 TF
A B C D E |
| 85 TF
A B C D E | 100 TF
A B C D E | 115 TF
A B C D E | 130 TF
A B C D E | 145 TF
A B C D E |
| 86 TF
A B C D E | 101 TF
A B C D E | 116 TF
A B C D E | 131 TF
A B C D E | 146 TF
A B C D E |
| 87 TF
A B C D E | 102 TF
A B C D E | 117 TF
A B C D E | 132 TF
A B C D E | 147 TF
A B C D E |
| 88 TF
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A B C D E | 118 TF
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A B C D E |
| 89 TF
A B C D E | 104 TF
A B C D E | 119 TF
A B C D E | 134 TF
A B C D E | 149 TF
A B C D E |
| 90 TF
A B C D E | 105 TF
A B C D E | 120 TF
A B C D E | 135 TF
A B C D E | 150 TF
A B C D E |



TANTA UNIVERSITY
FACULTY OF PHARMACY
DEPARTMENT OF PHARMACEUTICAL CHEMISTRY



FINAL EXAM FOR SECOND LEVEL (PHARM D) (CLINICAL PHARMACY) STUDENTS

COURSE
TITLE:

Pharmaceutical Organic Chemistry III

COURSE CODE: PC 303

DATE:

01/03/2021

FIRST
SEMESTER:

TOTAL ASSESSMENT
MARKS: 50

TIME ALLOWED: 120
MINUTES

This exam booklet contains two questions in 10 pages + separate answer sheet for electronic correction machine

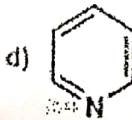
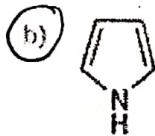
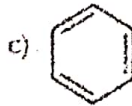
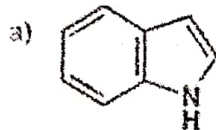
Use blue pen only. Answers using pencils will not be accepted.

Question 1: 24 MCQs (1.5 × 23 = 34.5 marks, 80 minutes)

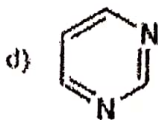
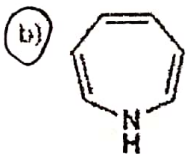
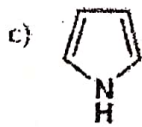
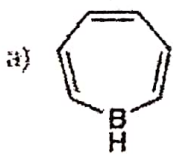
Question 2: Various styles of questions (16 marks, 40 minutes)

Question 1: You are provided with 23 MCQs. Mark only one correct answer in the separate answer sheet provided. (1.5 × 23 = 34.5 marks, 80 minutes)

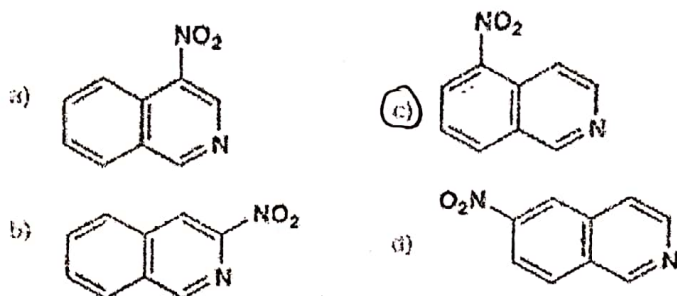
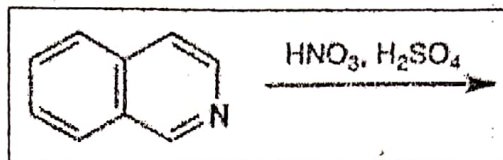
1. Which is most reactive towards an electrophile?



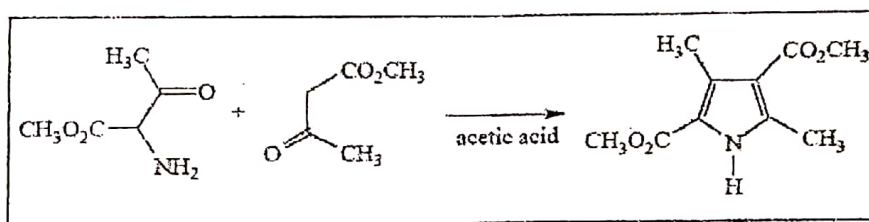
2. Which is not aromatic?



3. Which the main product obtained from the following reaction?

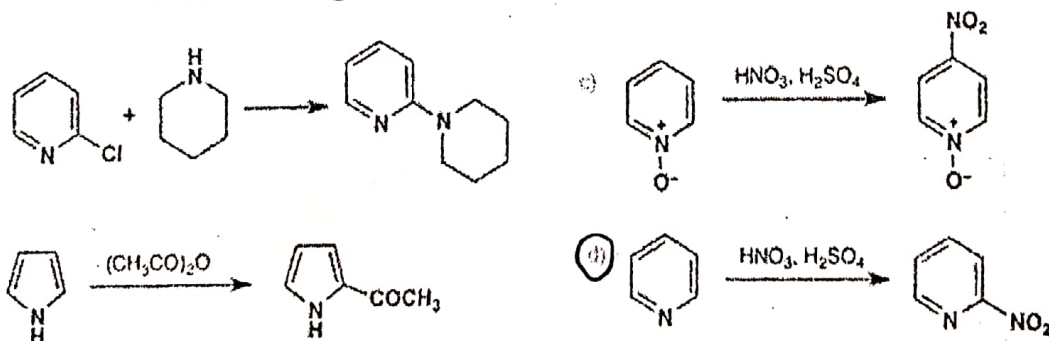


4. The name of the following reaction is:

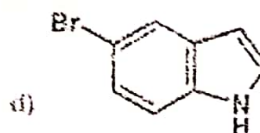
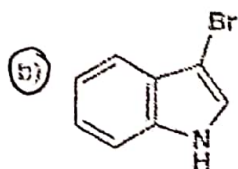
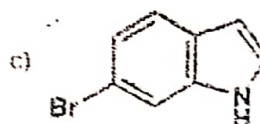
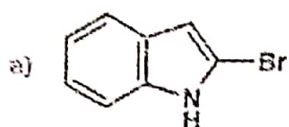
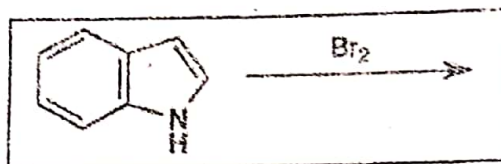


- a- Friedel-Crafts acylation.
- b- Paal-Knorr pyrrole synthesis.**
- c- Chichibabin reaction.
- d- Reimer Tiemann reaction

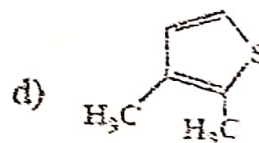
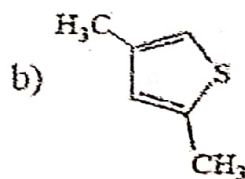
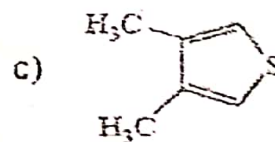
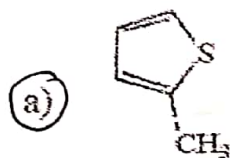
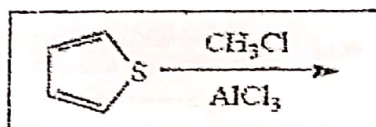
5. Which of the following does not give the corrected product?



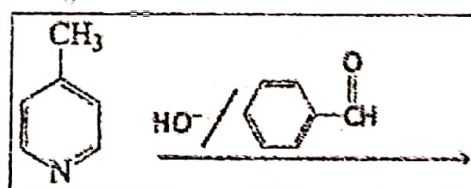
6. Which the main product obtained from the following reaction?

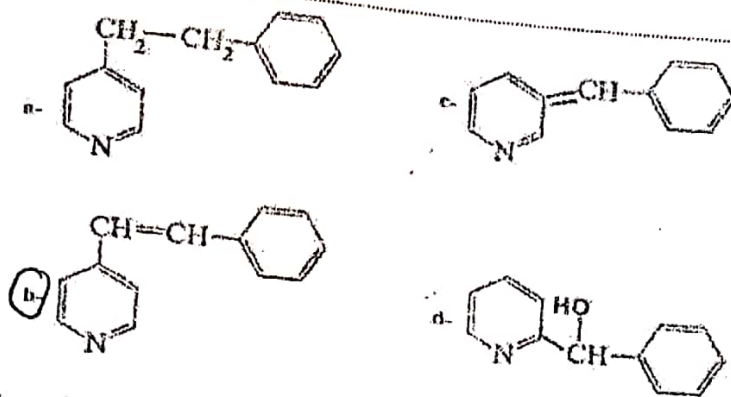


7. Pick the major product in the following reaction.



8. Pick the major product in the following reaction





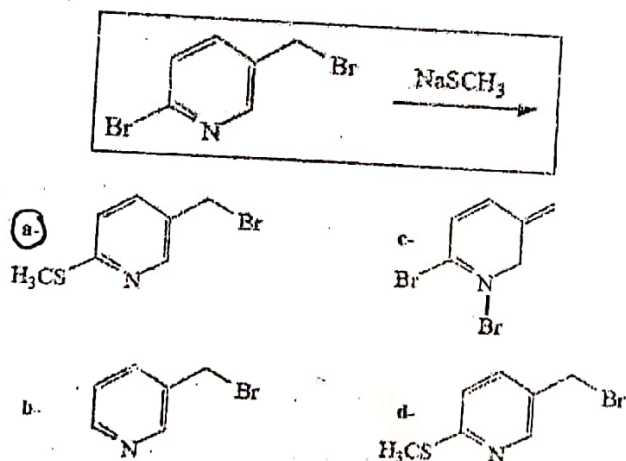
9. The reaction of pyrrole / CHCl_3 / NaOH is called:

- a- Friedel-Crafts acylation.
- b- Paal-Knorr pyrrole synthesis.
- c- Chichibabin reaction.
- d- Reimer Tiemann reaction

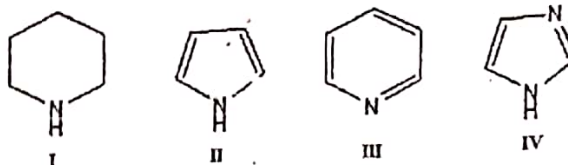
10. The reaction of pyrrole with H_2SO_4 gives:

- a- 2-Pyrrolesulfonic acid.
- b- Pyrrole-2-sulfonic acid.
- c- Pyrrole-3-sulfonic acid.
- d- Polymerization reaction

11. Pick the major product in the following reaction:

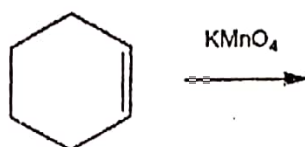


12. The decreasing order of basicity the following compounds is:



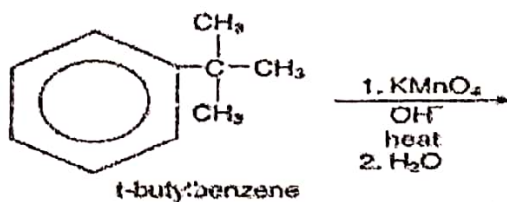
- a- I > III > II > IV
 b- I > IV > II > III
 c- I > IV > III > II
 d- I > II > III > IV

13. What the product of the following reaction?



A.	<chem>HOOC(CH2)6COOH</chem>	B.	<chem>HOOC(CH2)5C(=O)CH3</chem>
C.	<chem>HOOC(CH2)4C(CH3)2COOH</chem>	D.	<chem>HOOC(CH2)4C(CH3)2C(=O)CH3</chem>

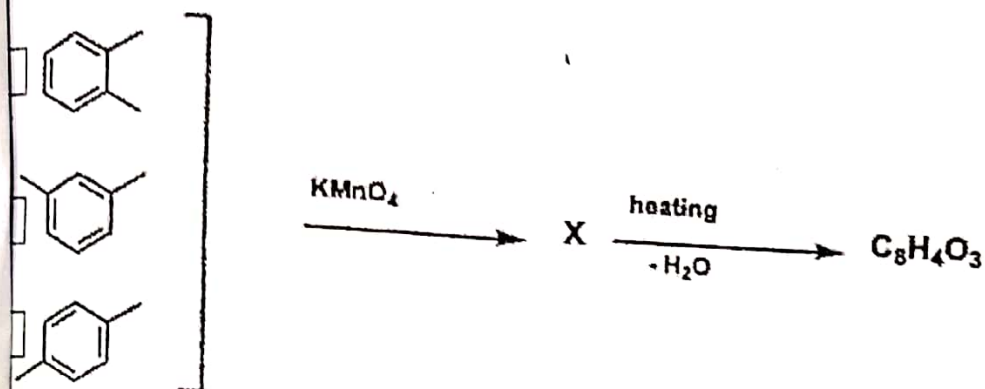
14. What the product of the following reaction?



A.	<chem>c1ccc(cc1)C(=O)O</chem>	B.	<chem>c1ccc(cc1)C(=O)O</chem>
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A.		B.	
C.		D.	

the isomers outlined in the parentheses (ortho-, meta, para-) reacted with the excess of NO_2 forming compound X which on heating loses one molecule of water giving a product with molecular formula $\text{C}_8\text{H}_4\text{O}_3$. (21-23)



Determine which isomer was used

<input checked="" type="checkbox"/> 1	<input type="checkbox"/> B. 2	<input type="checkbox"/> C. 3
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Determine the structure of compound X

<input checked="" type="checkbox"/>	<input type="checkbox"/> B.	<input type="checkbox"/> C.
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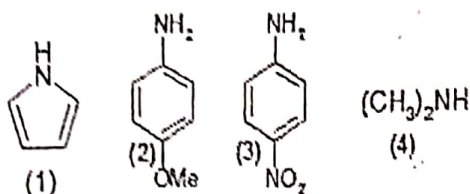
Determine the structure of final product ($\text{C}_8\text{H}_4\text{O}_3$)

<input checked="" type="checkbox"/>	<input type="checkbox"/> B.	<input type="checkbox"/> C.
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Question 2: Various styles of questions (16 marks, 40 minutes)

A. The compounds hereunder are arranged according to their basicity as follows:

(1 mark)



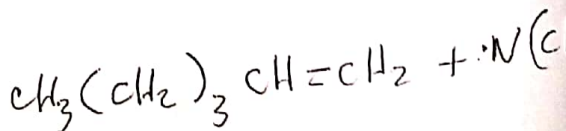
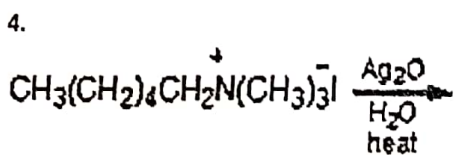
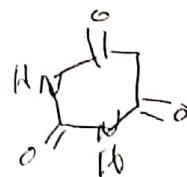
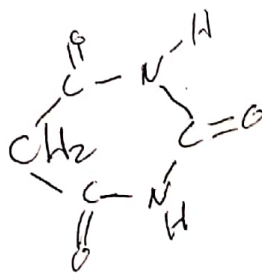
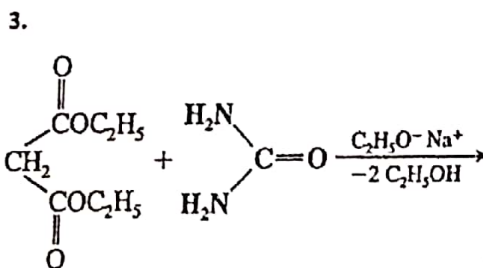
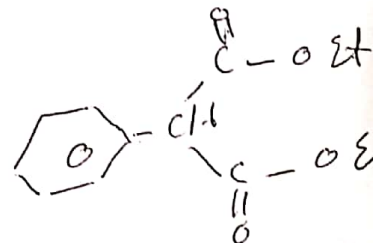
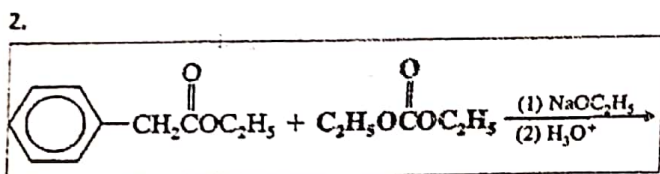
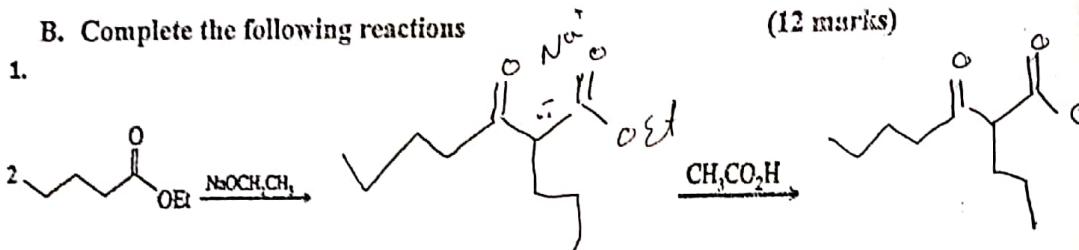
- a) 1 > 2 > 3 > 4
c) 2 > 1 > 4 > 3

b) 1 > 3 > 2 > 4

d) 4 > 2 > 3 > 1

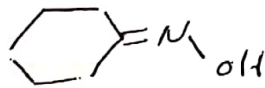
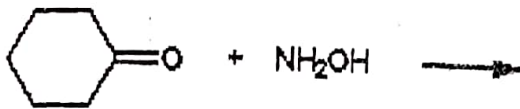
B. Complete the following reactions

(12 marks)



Major product + Minor product

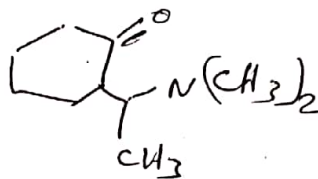
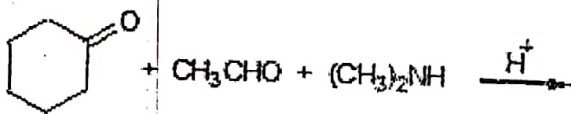
5.



Name of the product

cyclohexanone oxime

6.



C. Prepare 4-oxopentanoic acid from (1) (3 marks)

