



# MEDICAL UNIVERSITY - VARNA

## ANSWER SHEET

Examination in: *Chemistry*

Date: .....

City: .....

Country:.....

To be filled in by the applicant

Final mark: .....

Examinators:

1. ....

2. ....

To be filled in by the Medical University

### Section A: Multiple-Choice Questions

Each test item has only one correct answer. Mark the correct answer by crossing the letter. If no answer or more than one answer is marked – the answer will be considered as wrong. Any kind of corrections are NOT allowed – answer with corrections will be considered as wrong. No points will be deducted for wrong answers.

#### Example:

1       a    b    c    d

1	a	<input checked="" type="checkbox"/> b	c	d
2	<input checked="" type="checkbox"/> a	b	c	d
3	<input checked="" type="checkbox"/> a	b	c	d
4	a	<input checked="" type="checkbox"/> b	c	d
5	a	b	<input checked="" type="checkbox"/> c	d
6	a	b	c	<input checked="" type="checkbox"/> d
7	a	b	c	<input checked="" type="checkbox"/> d
8	a	<input checked="" type="checkbox"/> b	c	d
9	a	b	c	<input checked="" type="checkbox"/> d
10	a	b	<input checked="" type="checkbox"/> c	d
11	<input checked="" type="checkbox"/> a	b	c	d
12	a	b	c	<input checked="" type="checkbox"/> d
13	<input checked="" type="checkbox"/> a	b	c	d
14	a	b	<input checked="" type="checkbox"/> c	d
15	a	<input checked="" type="checkbox"/> b	c	d
16	a	<input checked="" type="checkbox"/> b	c	d
17	a	b	<input checked="" type="checkbox"/> c	d
18	<input checked="" type="checkbox"/> a	b	c	d

19	a	b	c	<input checked="" type="checkbox"/> d
20	a	<input checked="" type="checkbox"/> b	c	d
21	a	<input checked="" type="checkbox"/> b	c	d
22	<input checked="" type="checkbox"/> a	b	c	d
23	a	b	<input checked="" type="checkbox"/> c	d
24	a	b	c	<input checked="" type="checkbox"/> d
25	a	b	c	<input checked="" type="checkbox"/> d
26	<input checked="" type="checkbox"/> a	b	c	d
27	a	b	c	<input checked="" type="checkbox"/> d
28	a	b	c	<input checked="" type="checkbox"/> d
29	<input checked="" type="checkbox"/> a	b	c	d
30	<input checked="" type="checkbox"/> a	b	c	d
31	a	b	<input checked="" type="checkbox"/> c	d
32	a	b	<input checked="" type="checkbox"/> c	d
33	a	b	c	<input checked="" type="checkbox"/> d
34	a	b	c	<input checked="" type="checkbox"/> d
35	a	b	<input checked="" type="checkbox"/> c	d



### Section B: Gap Filling Questions

Each test item has four missing words or terms. Write the most appropriate words or terms that may fill the gaps. Corrections are NOT allowed – corrected or not filled answers will be considered as wrong. No points will be deducted for wrong answers.

1. 1 peptide 2 amide  
3 water 4 secondary
2. 1 concentration 2  $v=k.C^n(A). C^m(B)$   
3 higher 4 increase

### Section C: Matching Questions

Each item from column I should be matched with those given in column II. Cross the letter of the correct term from column II to the corresponding number from column I. Corrections are NOT allowed – corrected or not filled answers will be considered as wrong. No points will be deducted for wrong answers.

	Column I	Column II				
1.	1	a	b	c	d	<del>e</del>
	2	a	b	<del>c</del>	d	e
	3	a	<del>b</del>	c	d	e
	4	a	b	c	<del>d</del>	e
	5	<del>a</del>	b	c	d	e

	Column I	Column II				
2.	1	a	b	c	d	<del>e</del>
	2	a	b	<del>c</del>	d	e
	3	a	<del>b</del>	c	d	e
	4	<del>a</del>	b	c	d	e
	5	a	b	c	<del>d</del>	e



### Section D: True/False Questions

Each statement in this section is true or false. Indicate whether the statement is true or false by crossing TRUE for the correct statement or FALSE – for the incorrect. Corrections are NOT allowed – corrected or not marked answers, as well as if both possibilities are marked will be considered as wrong. No points will be deducted for wrong answers.

1	True	<del>False</del>
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2	<del>True</del>	False
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### Section E: Definitions and Explanations

Give definition and briefly explain the following chemical or biological concepts.  
Give examples where applicable.

1	<p><i>electrolytic dissociation</i> - a process when the individual components of a substance placed into a solvent dissociate due to the thermodynamic interactions between solvent and solute molecules. For example, when table salt, NaCl, is placed in water, the salt (a solid) dissolves into its component ions, according to a dissociation reaction.</p> $\text{NaCl} \longrightarrow \text{Na}^+ + \text{Cl}^-$ <p>Electrolytes break up into cations (positively charged ions) and anions (negatively charged ions). Strong electrolytes ionize completely (100%), while weak electrolytes ionize only partially (usually in order of 1–10%).</p> <p>Strong electrolyte: <math>\text{NaOH} \longrightarrow \text{Na}^+ + \text{OH}^-</math></p> <p>Weak electrolyte: <math>\text{NH}_4\text{OH} \rightleftharpoons \text{NH}_4^+ + \text{OH}^-</math></p>
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2

The esterification reaction is slow and reversible process between alcohols and oxygen containing acids. The products of the reaction are called esters. Chemical conditions include heat and catalyst – usually  $H^+$  from concentrated sulphuric acid. The equation for the reaction between an acid  $RCOOH$  and an alcohol  $R''OH$  (where  $R$  and  $R''$  can be the same or different) is:



For example, if you were making ethyl ethanoate from ethanoic acid and ethanol, the equation would be:



Number of points: