

**UNIVERSITY OF TORONTO
NATIONAL BIOLOGY COMPETITION
2016**

ANSWER KEY

1	C
2	D
3	A
4	B
5	E
6	C
7	(see note below)
8	C
9	B
10	A
11	A
12	D
13	C
14	E
15	B
16	D
17	A
18	B
19	E
20	D
21	B
22	A
23	C
24	A
25	E

26	D
27	B
28	C
29	B
30	E
31	D
32	A
33	A
34	E
35	C
36	B
37	D
38	E
39	A
40	D
41	E
42	D
43	A
44	C
45	B
46	B
47	E
48	C
49	D
50	B

Note:

Forty-nine (49) questions on the exam were graded. Question 7 was deleted from the exam as the response rate was extremely low among both student and teacher participants. Question 7: E is the correct response. Hydrophobic interactions are interactions between hydrophobic molecules and consist only of weak forces (van der Waals and London dispersion forces, induced dipole-induced dipole interactions). The spontaneous formation of bilayers results from the entropic aspect of thermodynamics, and not from these weak bonds. Lipids coalesce to reduce the amount of water surrounding its molecules, and thereby increasing entropy of water. This phenomenon results in the formation of essential components of life, such as the lipid bilayer membrane in eukaryotic cells.