

Contents

I. INTRODUCTION	5
1. Aims and tasks of the IYPT	5
2. History	5
3. Organization Structure of the IYPT	6
4. Regulations of the IYPT	6
5. The problems	7
6. Educational effectiveness	7
7. Conclusion	10
Acknowledgment.....	10
References:	10
II. PROBLEMS FOR THE 18TH IYPT.....	12
III. SOLUTION OF THE PROBLEMS FOR THE 18TH IYPT	14
1. Problem №2 “The Two balls problem”	14
Solution of Brazil.....	14
2. Problem №4 -Hydraulic Jump	30
Solution of Korea.....	30
3. Problem №8 Wind Car	42
Solution of Brazil.....	42
4. Problem №9 Sound in the glass	63
4.1.Solution of New Zealand	63
4.2. .Solution of Ukraine.....	71
5. Problem № 11 Water Droplets	76
Solution of New Zealand	76
6. Problem № 13 – Hard starch	81
Solution of Czech Republic	81
7. Problem №14 Einstein–de Haas Experiment.....	85
7.1. Solution of Brazil.....	85
7.2. Solution of Bulgaria (American College of Sofia)	95
7.3. Solution of Bulgaria (SHUMEN)	103
7.4. Solution of Czech Republic	109
7.5. Solution of Poland	113
8. Problem № 15: Optical Tunneling	120
8.1. Solution of Brazil.....	120
8.2. Solution of Croatia.....	134
8.3. Solution of Ukraine.....	143
9. Problem № 16: Obstacle in a funnel	147
Solution of Hungary	147
10. Problem № 17: Ocean Solaris.....	154

10.1. Solution of Czech Republic	154
10.2. Solution of Ukraine.....	158
IV. PROBLEMS FOR THE IYPT FROM PREVIOUS YEARS	164
1. Problems for the 17th IYPT – Brisbane, Australia, 2005	164
1.1. Problem № 2: “Stubborn Ice” – IYPT 2004	166
<i>Solution of Austria</i>	<i>166</i>
1.2. Problem № 3: Electric Pendulum – IYPT 2004	170
<i>Solution of Austria</i>	<i>170</i>
2. Problems for the IYPT from the 7th to the 16th IYPT	175
2.1. Problems for the 7th IYPT – Netherlands, 1994.....	175
2.2. Problems for the 8th IYPT – Spala, Poland, 1995.....	178
2.3. Problems for the 9th IYPT – Kutaissi, Georgia, 1996.....	181
2.4. Problems for the 10th IYPT – Cheb, Czech Republic, 1997	183
2.5. Problems for 11th IYPT – Donaueschingen, Germany, 1997	185
2.6. Problems for the 12th IYPT– Vienna, Austria, 1999.....	187
2.7. Problems for the 13th IYPT – Budapest, Hungary, 2000	190
2.8. Problems for the 14th IYPT – Espoo, Finland, 2001.....	192
2.9. Problems for the 15th IYPT– Odessa, Ukraine, 2002	194
2.10. Problems for the 16th IYPT – Uppsala, Sweden, 2003	196
V. PROBLEMS FOR THE 19TH IYPT – BRATISLAVA, SLOVAKIA, 2006	198