

**STATE ROAD SCHOLAR EXAM**  
**Illinois Science Olympiad State Finals Competition**

**University of Illinois**  
**Saturday, April 26, 2008**

Welcome to the State Competition of the Road Scholar in Champaign, Illinois. You will begin your trip in Urbana, Illinois and travel south to an area near Charleston, Illinois. You are prepared for the trip with a **state highway map [HM]** and a topographic map, **Charleston South, IL [CS]**.

Randy, Shannon, and Michael were about to finish their senior year at Urbana High School. It had been a good year, and all three friends were looking forward to a summer of doing what they loved, running, swimming and canoeing. This weekend was to be their first attempt at completing a triathlon, which would be held near Charleston on Saturday and Sunday.

On June 5<sup>th</sup>, Saturday, the three friends met at Meadowbrook Park in southeastern Urbana, and loaded everything into Shannon's SUV. They left the park and headed west on Windsor Road. Soon they crossed the \_\_\_\_\_ **River [1-HM, Champaign/Urbana inset]**, before turning south on Neil Street toward Mattoon. Looking at the map, Randy noticed that the street going south was also called **U.S. Route # \_\_\_\_\_ [2-HM, Champaign/Urbana inset]**. "How far is it from Champaign/Urbana to Mattoon?" asked Shannon. Randy checked the mileage chart, and found it is \_\_\_\_\_ **miles [3-HM]** from Champaign to Mattoon. "We should be there within one hour", he said.

Driving south from Champaign/Urbana on US Route 45, the three soon came to a town named Tolono. Shannon wondered how big the town was, and noted that the map symbol for Tolono indicated that the population was between \_\_\_\_\_ and \_\_\_\_\_ **[4-HM]**. Checking the city index for a more exact figure, she found that Tolono had a **population of \_\_\_\_\_ [5-HM]**. She also noticed they would be leaving Champaign County soon, and would pass through \_\_\_\_\_ **County [6-HM]** before reaching Mattoon, which was located in \_\_\_\_\_ **County [7-HM]**.

When they reached Mattoon, they turned east on **State Route \_\_\_\_\_ [8-HM]**, heading toward Charleston. Randy noticed that the State Route map symbol was a double black line between Mattoon and Charleston, meaning it was a \_\_\_\_\_ **[9-HM] highway** along that section of the road. The symbol used for the town of Charleston, a circle with a dot in the center, indicated it was the \_\_\_\_\_ **[10-HM]** of Coles County.

“I think we can use the topographic map now”, said Michael. He picked up the Charleston South Quadrangle, and noted that it was a \_\_\_\_\_ [11-CS] **-minute series map**, which means it has a **scale of 1:** \_\_\_\_\_ [12-CS]. It was **published in the year** \_\_\_\_\_ [13-CS], produced by the \_\_\_\_\_ agency [14-CS]. He looked at the Charleston South quadrangle map and saw that they were entering the map on the western edge, on State Route 16, in **Section #**\_\_\_\_\_ [15-CS] of **Township T** \_\_\_ N [16-CS] and **Range R** \_\_\_ E [17-CS]. Just before reaching Charleston, they crossed \_\_\_\_\_ **Creek** [18-CS], noting that its **elevation** at the crossing was \_\_\_\_\_ [19-CS] **feet**. “That’s funny”, said Michael. “Something’s wrong with this map. The index and intermediate contours indicate that the **contour interval** is \_\_\_\_\_ [20-CS] **feet**, but in the legend under the map scale, the contour interval is \_\_\_\_\_ [21-CS] feet. The legend is wrong! I guess cartographers sometimes make mistakes!”

“Whew, I smell something funny. What is that smell?” asked Shannon. Consulting the map, Michael guessed that it was probably the \_\_\_\_\_ **Plant** [22-CS] located just to the north of the creek crossing. “I’m glad we won’t be swimming there!” said Randy. They drove through town, and passed \_\_\_\_\_ **University** [23-CS] on the south side of the road, with its many large buildings.

Continuing a few more blocks, they came to the intersection with **State Route** \_\_\_\_\_ [24-CS] on the east side of town. Turning right, they followed this road south to the entrance of a park on the south side of a large lake, named **Lake** \_\_\_\_\_ [25-CS]. They drove into the park and stopped on the top of the hill. Remembering the contour interval of 10 feet, they determined that the hill top was at about \_\_\_\_\_ **feet** [26-CS] above sea level. From the top of the hill, they could see the lake below, with a **surface elevation** of \_\_\_\_\_ **feet** [27-CS].

At 1:00 that afternoon, Randy, Shannon, and Michael completed the first part of the triathlon. They swam straight across the lake, from the boat ramp just west of the park, to the north shore and back again, approximately \_\_\_\_\_ **miles** [28-CS] total. They were very tired when they finished! After a good supper, they went to sleep to be ready for the next day.

On Sunday morning, the three friends began the second part of the triathlon, canoeing on the \_\_\_\_\_ **River** [29-CS] just south of Lake Charleston. Taking their topographic map with them, they put their canoes in the river where it crosses under State Route 130. “Wow, this river is a lot wider here than it was in Urbana!” said Shannon. That afternoon they paddled south along the river all the way to the Fox Ridge State Park, ending in Sec. 14, T11N, R9E, near the end loop of the southern most road in

the Fox Ridge State Park. They had paddled approximately 8.5 miles, beginning at an **elevation** of \_\_\_\_\_ feet [30-CS] and ending at an elevation of \_\_\_\_\_ **feet** [31-CS]. Along the way, two named creeks joined the river, the \_\_\_\_\_ **Creek** [32-CS] and the \_\_\_\_\_ **Creek** [33-CS]. “It’s good we stopped here at the park, or we would have needed the \_\_\_\_\_ **Quadrangle** [34-CS] map, to the south of the Charleston South Quadrangle map.

The three friends rested at nearby Ridge Lake, located at approximately \_\_\_\_ **degrees** \_\_\_\_ **minutes N latitude** [35-CS] and \_\_\_\_ **degrees** \_\_\_\_ **minutes W longitude** [36-CS]. As they were resting and looking over the quadrangle map, they noticed the Lincoln Log Cabin State Historical Site near the southern edge of the map. If you were a bird, and began from the center of Ridge Lake, you could fly straight to the large building on Lincoln’s Log Cabin Historical Site at a bearing of **S** \_\_\_\_\_° **W** [37-CS].

The last leg of the triathlon was to run east from the lake, turning north along State Route 130, and continue back to Lake Charleston Park where they had camped. Measuring from the entrance to Fox River State Park at State Route 130, to the intersection of State Route 130 and the Embarras River, the three ran \_\_\_\_\_ **miles** [38-CS]. They were happy to be done! They did it!