Name: _____ Group №: _____

Course: _____

Date: _____/ _____ / _____

RAILWAY ELECTRIFICATION:

FROM THE HISTORY OF ELECTRIC TRACTION

1 **Read the text and translate it :**

1. There is a wide variety of election traction systems around the world, which have been built according to the type of railway, its location and the technology available at the time of the installation. Many installations seen today were first built more than 100 years ago.

2. Faraday's discovery in the 1820s that electricity could create continuous motion and subsequent inventions of the first electric motors and dynamos initiated several attempts to power railed vehicles in the mid-nineteenth century. In fast, the first demonstrated electric locomotive was a miniature. This was a 3 hp narrow-gauge midget which Werner von Siemens, a German engineer, displayed at 1879 Berlin Exhibition. It could transport some thirty visitors at a time around a 900 ft (275 m) circle of track at about **2** mph (6 km/h). It was a primitive machine with simple switchgear, but its role in technological development was greater than that of steam in the previous fifty years.

3. At first, this kind of traction in Germany and America was used in mines because of its mechanical simplicity, but a few years later it led to the construction of the first electric passenger trams.

4. In Germany, a short line was constructed in 1881 and in Britain Magnus Volk, an energetic and inventive electrical engineer, built a 2 ft (610 mm) gauge railway along the shore of one of the English resorts. His railway, which is still operational, is considered to be the first railway which was built specially for electric traction.

Additional information

5. In the last 20 years, there has been a gigantic acceleration in railway traction development. This has run in parallel with the development of power electronics and microprocessors. What have been the norms for the industry for, sometimes, 80 years, have suddenly been changed. Fundamental changes have taken place in design, manufacture and operation. Many of these changes have been so rapid, there are still plenty of examples of the original technology around and in regular use.

2 Give the Russian equivalents to the following international words:

1. Technology -	9. Type -
2. Electricity -	10. Energetic -
3. Motor -	11. Control -
4. Gigantic -	12. Fundamental -
5. Mechanical -	13. Industrial -
6. Industry -	14. Microprocessor -
7. Special -	15. Electronics -
8. Regular -	16. Engineer -

3 Find in the text the synonyms to the following words:

1. Diversity (paragraph 1)	
2. Type (paragraph 3)	
3. Fast (paragraph 5)	
4. Brief (paragraph 4)	
5. Show (paragraph 2)	
6. Evolution (paragraph 5)	
7. Was built (paragraph 4)	

4 Find in the text the antonyms to the following words:

1. Tiny (paragraph 5)	
2. Destroy (paragraph 1)	
3. Secondly (paragraph 3)	
4. Few (paragraph 1)	
5. Deceleration (paragraph 5)	
6. Long (paragraph 4)	
7. Wide (paragraph 2)	

5 Translate the sentences into Russian paying attention to the translation of the verb be:

1. Steam locomotives are supposed to be the most reliable (надежный) locos under war conditions.

2. At first electric power was used in mines and tunnels to avoid (избежать) smoke and steam.

3. Because electric locos can accelerate more rapidly, more trains can run on the same track.

4. The new locomotives will go on a demonstration tour of the United States and Canada in 2004.

5. November 6, 1924 is considered to be the birthday of the first mainline diesel-electric locomotive in Russia .

6. Before 1895 only steam-driven locomotives operated on US railroads.

7. Some old steam locomotives are reported to be still operational on tourist routes in England. They attract a lot of tourists.