

National Technical University «Kharkiv Polytechnic Institute»

Level of higher education Bachelor
Specialty 141 Power engineering, electrical engineering and electromechanics
Educational program Electromechanics
Academic discipline Fundamentals of Power Electric Engineering
Semester 2

TEST PAPER No. 1

1. History of electrical engineering. The basis of electrical equipment of power plants
2. The main types of permanent magnets. Areas of use of permanent magnets
3. Advantages and disadvantages of obtaining electricity from wind turbines.

Approved at the meeting of the department «Electric Machines».
Protocol № 1 of 25 August 2022.

Head of Department
«Electric machines» _____ Vladimir MILYKH
(signature)
Examiner _____ Valentina SHEVCHENKO
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TEST PAPER No. 2

1. Modes of electric machines operation. The principle of electric machines reversibility.
2. Advantages and disadvantages of obtaining electricity from mini-hydropower plants.
3. The impact of wind turbines on the environment. Means to combat bio-resonance from wind turbines.

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TEST PAPER No. 3

1. Electricity generation at HPPs and PSPs.
2. Electric generators for mini-hydropower plants
3. Problems and means of utilization of elements of wind power plants.

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TEST PAPER No. 4

1. Synchronous generators with different designs of rotors.
2. Use of permanent magnets for low power electric generators
3. Use of high-temperature superconductivity for wind power plants

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TEST PAPER No. 5

1. Advantages and disadvantages of generators with permanent magnets
2. Completion of the nacelle of powerful wind turbines
3. The impact of wind turbines on the environment.

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TEST PAPER No. 6

1. Technology of obtaining electricity at nuclear power plants.
2. Features of operation of wind power plants for individual consumers and the general power system.
3. Generators for small hydropower plants.

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Semester 7

TEST PAPER No. 7

1. Types of electromagnetic excitation systems for synchronous generators.
2. Technical and economic analysis of the choice of generator for wind turbines.
3. Environmental problems of renewable energy sources.

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Semester 2

TEST PAPER No. 8

1. Types of permanent magnets used for electric machines.
2. Means of ensuring environmental safety of electricity generation.
3. Advantages and features of offshore wind turbines.

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TEST PAPER No. 9

1. Obtaining electricity at thermal power plants.
2. Promising directions of development of electric power from renewable energy sources in Ukraine.
3. Use of high-temperature superconductivity for wind power plants

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TEST PAPER No. 10

1. History of electrical engineering. History and prospects of using mini-hydropower plants in Ukraine
2. Development of the world's modern electricity from renewable energy sources.
3. Electrical equipment of wind power plants. Completion of the gondola of powerful wind turbines

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