

**MASTER OF SCIENCE
(RENEWABLE ENERGY AND
ENVIRONMENT) (MSCRWEE)**

Term-End Examination

June, 2025

MRW-001 : ENERGY CONVERSION

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.

1. (a) A 4P, Lap wound DC generator is used to run at a speed of 1000 r.p.m. It has flux/pole of 0.02 Wb/m^2 and 600 conductors. Find the voltage generated by the generator. 5

- (b) Explain the importance of non-conventional energy sources in the context of global warming. 5
2. (a) Write a note on Wind Electric Power Generating System. 5
- (b) Briefly explain the diffusion combustion process. 5
3. Explain briefly the Solar Photovoltaic System with the help of suitable diagrams. 10
4. (a) Write down the advantages and disadvantages of parallel flow jet condenser. 5
- (b) Describe the thermodynamic cycle of regeneration for Steam Power Plant. 5
5. With the help of a diagram, compare the forces acting on impulse and reaction steam turbine blades. 10
6. (a) State the working principle of electrostatic precipitator. 5

- (b) Discuss belt conveyer used for coal ash handling. 5
7. Describe the operation of a four-stroke Diesel engine. 10
8. Describe the factors for site selection of hydroelectric power plant. 10
9. Write short notes on any *two* of the following : 5+5
- (a) Ultimate analysis and proximate analysis of coal
- (b) Octane number
- (c) Fire tube boilers
10. (a) Determine and compare the combustion equations with oxygen and with air. 5
- (b) Explain in brief geothermal power generation system. 5

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