

No. of Printed Pages : 3

MRW-001

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

Term-End Examination

June, 2024

MRW-001 : ENERGY CONVERSION

Time : 3 Hours

Maximum Marks : 70

Note : (i) *Attempt any five questions.*

(ii) *Each question carries equal marks.*

1. (a) Explain the difference between a 4-stroke engine and 2-stroke engine. 7
- (b) What is the difference between single-phase induction motor and three-phase induction motor ? Also write application of both motors. 7

P. T. O.

2. (a) (i) On which principle of Francis turbine works ? Explain. 4
- (ii) Explain the working principle of De Laval turbine. 3
- (b) Which type of condenser is used where water supply is expensive as in deserts and for small generation of power ? Explain working of such condenser with neat line diagram. 7
3. (a) Explain Stoichiometric Analysis for combustion with air. 7
- (b) (i) How are liquid fuels classified ? Also, give example of each. 2
- (ii) Write average composition of crude petroleum. 2
- (iii) Write *three* important varieties of petroleum. 3
4. (a) What is a boiler ? Where boilers are used ? Also explain the difference between fire tube boiler and water tube boiler. 7

- (b) How rating or octane number of poor fuels can be raised ? Explain in detail. 7
5. (a) Explain construction and working principle of Magneto Hydro Dynamic (MHD) power generation. 7
- (b) What is the function of steam nozzle ? How are steam nozzle classified ? 7
6. (a) What are the different types of coal ? Which type of coal contains maximum moisture and which type of coal contain maximum carbon ? 7
- (b) Explain the working principle of DC generator. Also, classify different types of DC generator. 7
7. Write short notes on any *two* of the following :
2×7=14
- (a) Electro-Chemical Energy Conversion
- (b) Law of Lavoisier and Laplace
- (c) Reaction steam turbine