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**MRW-001**

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

**Term-End Examination**

**December, 2023**

**MRW-001 : ENERGY CONVERSION**

*Time : 3 Hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. All questions carry equal marks.

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1. (a) (i) Is there any difference between energy and power ? If yes, define each. 3
- (ii) A DC fan draws a current of 4A from a mains supply of 250 V. This fan is used for 180 minutes during a day. How much electrical energy is consumed by the DC fan ? 4
- (b) What is the difference between DC machine and AC machine ? Explain on the basis of construction point of view. 7

**P. T. O.**

2. (a) (i) On which principle does Kaplan turbine work ? Explain. 4
- (ii) What is the difference between Jet and Surface condenser ? 3
- (b) Explain different factors on which the performance of gas turbine power plant depends. 7
3. (a) Write at least *three* natural and manufactured solid fuels. Also, write advantages and disadvantages of solid fuels. 7
- (b) State the following : 7
- (i) Amagat's law
- (ii) Avogadro's law
4. (a) Explain the advantages of fluidised boiler over conventional coal fired boiler on the basis of different parameters. 7
- (b) Explain the principle of operation of four-stroke diesel engine showing different stroke with the help of a neat diagram. 7
5. (a) (i) Explain how electrical energy can be generated with wind power plant. 4

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- (ii) What are the different factors that affect power output form wind energy converter ? Explain. 3
- (b) Explain regeneration and reheat processes for a power plant using steam turbine. 7
6. (a) Explain working principle of solar water heater with the help of a neat schematic diagram. 7
- (b) What is a jet condenser ? Name the different types of jet condenser. Explain any *one* of them with a neat diagram. 7
7. Write short notes on any *two* of the following :
- 2×7=14
- (a) Photoelectric energy conversion
- (b) Hess' law of constant heat summation
- (c) Electrostatic Precipitator (ESP)