Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

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MEPE-301(C)

M.E./M.Tech., III Semester

Examination, November 2018

Non-Conventional Energy Sources and Energy Converters

(Elective-I)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What is meant by renewable energy sources? Explain in brief these energy sources with special reference to Indian context. 7

   b) What are primary and secondary energy sources? Give the conclusion on alternate energy strategies. 7

2. a) Draw layout of a standalone solar PV system. 7

   b) Explain the working of biomass gasifier. What further processing is required to use the gas produced in a diesel engine? 7

3. a) Compare the characteristics of synchronous generator and induction generator. 7

   b) What are hybrid energy systems? State its various possible combinations. 7

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4. a) Discuss different energy measurement techniques used in practice. 7

   b) Describe and explain the characteristics of energy efficient motors. 7

5. a) What are the different types of energy converters? Discuss briefly and also give comment for futuristic system in this area. 7

   b) Describe in detail the function of mini-hydro generators. 7

6. With a neat sketch describe a solar heating system using air heating solar collectors, with advantages and disadvantages of the system. Describe briefly the different methods of producing hydrogen from solar energy. 14

7. Write a detailed note on energy efficient motors and measures adopted for their higher energy efficiency by addressing each loss in motors. 14

8. a) List factors affecting friction losses while rewinding.

   b) List a few energy efficiency improvement options in a refrigeration plant.

   c) Write note on mini-hydro generators. 14

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