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M. Sc. EXAMINATION, 2020

(Third Semester)

(C Scheme) (Main & Re-appear)

(PHYSICS)

PHY631C

Science of Renewable Energy Resources

Time : 2½ *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) What are Fossil Fuels ? Write their limitations.

(b) What are the merits and demerits of non-conventional energy sources ?

(c) What do you mean by Ocean bio-mass ?

(d) What are the sources of wind energy ?

(e) What are Piezoelectric Material ? Give examples.

(f) Differentiate between geothermal energy and hydroenergy.

2. (a) Give detailed classification of non-conventional energy sources and their impact on environment.

(b) Explain the principle and working of solar cooker.

3. (a) Describe the materials used in solar cells along with their properties.

(b) Discuss the flat plate collectors, their applications and performance.

4. (a) What do you mean by wind energy ? Discuss the criterion for site selection of wind power generation.

(b) What are Tides ? Discuss the characteristics and statistics of tides.

5. (a) Write short notes on the following :

(i) Ocean thermal energy

(ii) Osmotic power.

(b) Classify the rotors used in the production of wind energy.

6. What is Geothermal Energy ? Explain, how geothermal electricity is produced ? Also write down the applications and drawbacks of geothermal energy.

7. (a) Explain the different resources of hydropower.

(b) What is Hydro-energy ? Also explain the various hydropower technologies.

8. (a) Explain the phenomenon of piezoelectric. Give its mathematical descriptions and also discuss its applications.

(b) Explain the impact of carbon based technologies on environment.

9. What are linear generators ? Discuss the principle, constriction, working and applications of linear generators.