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B. E. (Seventh Semester) Examination,

Nov.-Dec. 2015

(Old Scheme)

(Electrical)

**NON CONVENTIONAL & RENEWABLE ENERGY
SOURCES**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Part (a) of each unit is compulsory. Attempt any
two parts from (b), (c) & (d) of each question.
Assume suitable data if required*

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1. (a) Write the limitations of current power generation system. 2
- (b) What are the different forms of energy? Explain role of energy consumption in detail. 7

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- (c) Explain following : 7
- (i) exploitation of commercial primary energy sources
- (ii) economic growth and energy demand
- (d) Compare various energy conversion technologies. 7
2. (a) What is 'artificial wind'? 2
- (b) A 10 m/sec wind blows at standard atmospheric condition and 15°C.
- Calculate following :
- (i) Total power density in wind stream
- (ii) The maximum obtainable power density
- (iii) A reasonably obtainable power density if the efficiency is 40%. 7
- (c) Explain : CSVТУonline.com 3
- (i) Wind-Diesel hybrid system
- (ii) Neat sketch of a wind power system 4
- (d) Write short notes on following : 3½
- (i) low wind speed turbines
- (ii) site selection of wind power system 3½

3. (a) Explain geothermal system in brief. 2
(b) Explain hydrothermal system with neat sketch. 7
(c) What are the different types of ocean energy conversion technologies? Explain any one with suitable diagrams. 7
(d) Explain following : 7
(i) Problems in ocean thermal plants
(ii) Petrothermal systems
4. (a) What is solar power tower? 2
(b) What are solar-collectors? Explain with suitable diagrams. 7
(c) Explain working of solar water heater and solar ponds with diagrams. 7
(d) Write note on : CSVТУonline.com 7
(i) Limitations of solar energy
(ii) Solar refrigeration
5. (a) What is "Biomass" and Bio-energy? 2
(b) What are fuel cells? Write their merits, demerits and applications. 7

- (c) Explain the constructional features & working of a solar cell also write demerits and limitations. 7
(d) Explain thermo chemical and biochemical conversion technology in detail 7