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P584

SEAT No. :
[Total No. of Pages : 2

BE/Insem/APR - 174
B.E. (Mechanical)
SOLAR AND WIND ENERGY
(2015 Pattern) (Semester - II) (Elective - IV)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 2) *Draw suitable neat diagrams, wherever necessary.*
- 3) *Figures to right indicate full marks.*
- 4) *Use of electronic pocket calculator is allowed.*
- 5) *Assume suitable data, if required.*

Q1) a) Define beam, diffused and global radiation. Derive an expression for total radiation on tilted surface. **[6]**

b) Explain present solar energy scenario in India. **[4]**

OR

Q2) a) Define any six of the following. **[6]**
Altitude angle, Incident angle, Zenith angle, Solar azimuth angle, latitude angle, declination angle and hour angle.

b) Explain types of radiation measurement instrument, Explain one measurement instrument with figure. **[4]**

Q3) a) Classify solar thermal collectors and describe flat plate collector with the help of suitable diagram. **[6]**

b) Explain solar still with figure. **[4]**

OR

P.T.O.

Q4) a) Classify solar concentrating collectors and explain Concentrated Fresnel linear receiver with figure. [6]

b) Explain concept of solar tower with figure. [4]

Q5) a) Explain design methodology for solar photovoltaic system with solar cell equation. [6]

b) Write a short note on Solar p-n junction. [4]

OR

Q6) a) Explain solar PV System with block diagram. [6]

b) Explain with block diagram operation of standalone and grid interactive SPV System. [4]

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