Total No. of Questions : 6] **SEAT No. :**

P584

[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 titled 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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