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UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: Int. B.Tech. – ET+IPR **Semester – V**

Subject (Course): Solar Energy Technology **Max. Marks : 100**
Course Code : ETEG 304 **Duration : 3 Hrs**
No. of page/s: 2

Section A [4 marks x 5 = 20]

Q.1) (CO3) With the help of diagram explain arrangements of spaces and tubes in container for latent heat storage.

Q.2) (CO5) With the help of block diagram, explain the operations of grid interactive SPV system.

Q.3) (CO4) Briefly explain “solar green house”.

Q.4) (CO2) For a cylindrical parabolic concentrator of 2.5 m width and 9 m length, the outside diameter of the absorber tube is 6.5 cm. Find the concentration ratio of collector.

Q.5) (CO1) Calculate the zenith angle for air mass 1.5

Section B [10 marks x 4 = 40]

Q.6) (CO5) A solar cell array is required to deliver 100W peak output at 120V DC bus voltage. The solar cells to be used are rated for 0.1W peak output at 0.4V. Assuming that there are no assembly looses, define the array.

Q.7) (CO5) Explain in detail the I-V characteristics of a solar cell.

Q.8) (CO4) Give a neat diagram of a central tower receiver power plant and explain its operation.

Q.9) (CO1) Determine the sunset hour angle for Allahabad (longitude 81°58´E, latitude 24°25´N) for following dates: January 1, March22, july15.