JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-V Semester (CSE/IT/BT/ECE/CE)

COURSE CODE (CREDITS): 25B1WPH531 MAX. MARKS: 15

COURSE NAME: Physics of Renewable Energy Systems

COURSE INSTRUCTOR: VSA MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is allowed

Q.No	Question	CO	Marks
Q1	What are CFCs and how do they affect the ozone layer?	1	2
Q2	Calculate the temperature at which a perfectly black body radiates at the rate of 1 watt/cm^2.	2	2
Q3	List at least two Millennium Development Goals and briefly justify how access to energy is fundamental to them.	4	2
Q4	Briefly discuss the main reasons for the depletion of solar radiation as it reaches the surface of earth.	2	2
Q5	What is the function of solar tracking system and why do we need them? What are the advantages of SPVs with dual axis tracking in comparison to SPVs with single axis tracking?	1	3
Q6	Calculate the solar elevation on 22nd June 2026 at a location having latitude 23.5° North	2	2
Q7	Determine the angle of declination at a location with longitude 31.0098° Nand latitude 77.0688° E on (a) 20th March 2026 at about 20:18 IST and (b) 1st May 2026 at about 09:00 IST. Given Standard Time Longitude for IST is 82.5°.	2	2

Constants: Stefan's constant= =5.67 x 10^{-5} ergs/cm^{2}sec K^4, solar constant value = 1367 W/m^2