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Mid-Term Examinations – August 2021

Programme	: B.Tech. [BCE]	Semester	: Fall 2021-22
Course	: Energy & Environmental Physics	Code	: PHY2002
Faculty	: Dr. Suchetana Sadhukhan	Slot/ Class No.	: C11+C12/ 0246
Time	: 1 ½ hours	Max. Marks	: 50

Answer all the Questions

Q.No.	Sub. Sec.	Question Description	Marks
1	(a)	A spring of a spring gun is compressed a distance d from its relaxed state. A ball of mass m is put in the barrel. How can conservation of energy be applied in this situation to find out the speed of the ball when it leaves the barrel after the firing of the gun?	10
	(b)	Considering any of your favorite fruit, analyze the energy transformation from the food to human body.	6
2	(a)	Justify why a piece of hot iron glows red at temperature around 1000 K and yellowish orange at 2000K.	8
	(b)	Can heat be transferred through convection and conduction in a vacuum? Justify it with the detailed mechanism.	10
3		Being a future engineer, can you construct a heat engine that produces no thermal pollution?	6
5		What is a conventional source of energy? Describe the mechanism of any one conventional source of energy.	10