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| **Mid-Term Examinations – August 2021** | | | | | | | |
| Programme | : | **B.Tech. [ BCE]** | | Semester | | : | **Interim 2021-22** |
| Course | : | **Energy & Environmental Physics** | | Code | | : | **PHY2002** |
| Faculty | : | **Dr. Suchetana Sadhukhan** | | Slot/ Class No. | | : | **C11/ 0199** |
| Time | : | **1 ½ hours** | | Max. Marks | | : | **50** |
| **Answer all the Questions**   |  |  |  |  | | --- | --- | --- | --- | | **Q.No.** | **Sub. Sec.** | **Question Description** | **Marks** | | 1 | (a) | Compute the work done against gravity by a pump that discharges 600 liters of fuel oil into a tank 20 m above the pump’s intake. One cubic centimeter of fuel oil has a mass of 0.82 g. One liter is 1000 cm3. | **4** | |  | (b) | Energy can be transferred from one form to another. We use many energy converters in our daily life. Make a list with examples of any 8 converters including their names along with their energy chains. | **8** | | 2 |  | Figure below shows a bead sliding on a wire. If friction forces are negligible and the bead has a speed of 200 cm/s at A, what will be its speed (a) at point-B? (b) at point-C? | **10** | | 3 |  | For electromagnetic radiation, state the "laws" that describe the type and amount of energy being emitted by an object. | **8** | | 4 |  | A Carnot heat engine produces 10 kW by transferring energy between two reservoirs at 40°F and 212°F. Calculate the rate of heat transfer from the high-temperature reservoir. | **10** | | 5 |  | On what basis would you classify energy sources as renewable and non-renewable? Support your answer with some examples given from both the sources. | **10** | |  | | | | | | | | | | | |