**Exam Natural Science**

***I - Physical Section***

**Enter the answer in the box (...)**

**Question 1**: Two wharves A and B are separated by 24 km, the water flows in the direction of A to B with speed of 6 km / h. A canoe going from A to B takes 1 hour. Canoes how long it return? Know the machine's capacity is constant.

***Answer:***

**Question 2**: An and Binh cycling from Tien Lang to Kien An 18km long. An away with a speed of 18km / h. Binh goes 15 minutes earlier but takes a 30 minute coffee break. Ask Binh to pedal with how much speed to arrive at the same time with An?

***Answer:***

**Question 3**: Calculate the tension of the string in the figure, indicating OB = 20cm; AB = 5cm and the weight of the object is 40N?

**O**

**B**

**A**

****

**\***

***Answer:***

**Question 4**: It uses an inclined plane has a length of 8m to pull a mass of 50 kg to a height of 2m. with a force of 150N. What is the performance of the inclined plane?

***Answer:***

**Question 5**: An aluminum kettle weighing 400g contains 1 liter of water. Thermal energy needed to boil water be?Know the initial temperature of the kettle and water is 200C.The specific heat capacity of aluminum is880J/kg.K, of water is 4200J/kg.K.

***Answer:***

**Question 6**: Want 16 liters of water at a temperature of 400C.Ask how many liters of water must be mixed at a temperature of 200C with how many liters of boiling water?

***Answer:***

( *Enter results in descending order separated by ";"*)

**Question 7**: The planar mirrors (G1) and (G2) have reflective surfaces that create an angle of 600.  A small bright object S placed in the corner created by two mirrors located on the bisector of two mirrors, for all those photos through this mirror?

***Answer:***

**Question 8**: A conductor with a resistance of 176Ω is connected to a power source with a voltage of U = 220V. Radiate thermal energy on the wire in 15 minutes:

***Answer:***

**Question 9**: For the circuit as shown, R1 = 6Ω, R2 = 4Ω, R3 = 12Ω, UAB = 18V. The current flowing in the main circuit AB is:

***Answer:***

**Question 10**: A 220V - 100W bulb and a 220V - 1000W rice cooker are used at rated voltages. Every day the average lamp uses 5 hours, rice cooker uses 2 hours. Price 1 KWh is 1500 VND. Amounts payable of 2 electrical devices on 30 days:

***Answer:***

**Question 11**: Hanging a homogeneous sphere of volume V = 0.6 dm3 on a piece of rope in the air, the tension wires is T1.Keeping the above spheres completely submerged in water by rope (*figure*), the tension of the wire is.If so orbs floating freely on the water, the volume fraction of submersion is how much? Ignore the thrust of the air.

**Answers and scores**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Answer | 2 h | 24 km/h | 32 N | 83,3% | 364160 J | 12,80C; 3,20C | 6  | 247500 J | 1,25A | 112500VND |
| Scores | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

**Question 10**

|  |  |
| --- | --- |
| ***Answer*** | ***Scores*** |
| * When the orb hanging in the air: T1 = P (1)
 | 5 |
| * When the orb is in water:

+ The thrust of Acsimet affects the orb: FA = Vdn+ The orb is in balance: FA = P +T2 .* Vdn = P +  =  (2)
 | 5510 |
| * As the orb floats on the water:

+ The thrust of Acsimet affects the orb: FA = Vcdn+ The orb is in balance: FA = P* Vcdn = P (3)
 | 555 |
| From (2) and (3) we have: Vc = = 0,5dm3. | 10 |

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