Year 11 Physics Assignment   NAME_____
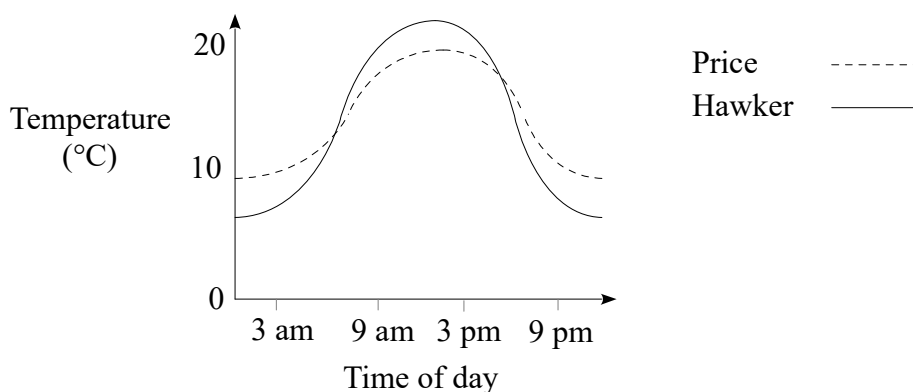Heat

1.
   (a) State one similarity and one difference between heat and temperature.   /2
   (b) Suggest and explain one way temperature can be measured without a thermometer.   /3

2.
   (a) Consider a metal object and a plastic object at the same temperature. Explain which one
      feels colder to touch.   /2
   (b) "During the winter, the insulation in our homes helps keep the cold out."
      Explain whether you agree or disagree with this statement.   /2
   (c) Use an example to explain how convection transfers heat energy.   /2
   (d) Write two questions for which the answer could include "Radiant heat".   /2

3. Explain one example of how thermal expansion is used or worked around.   /3

4.
   (a) Use an analogy to explain thermal equilibrium. Thermal equilibrium is like...   /2
   (b) "A hot drink at 90°C will reach room temperature faster than a hot drink at 70°C."
      Explain whether you agree or disagree with this statement.   /2

5. The graph below compares the average daily temperatures for the month of September in
   two South Australian towns. Price is a coastal town, Hawker is inland.

   Explain why the difference between maximum and minimum temperatures is larger for
   Hawker than for Price.   /2

6. The specific heat capacity of water is 4.18×10^3 J/kg/K.
   (a) Calculate the energy needed to heat 500 g of water by 50 K.   /2
   (b) When 50g of aluminium at 100°C is placed in water and cools to 30°C, it loses 3075 J of
      heat energy. Calculate the specific heat capacity of aluminium.   /3
   (c) Consider 10.0g of water at 100°C. If 1.0g of water evaporates, calculate the temperature
      of the remaining 9.0 grams. The latent heat of vaporisation for water is 2.272×10^6 J/kg.
                                                                                     /3
7.
   (a) A car engine operates at an efficiency of about 25%. Explain what this means.   /2
   (b) An 11 W compact fluorescent lamp bulb produces about 0.99 W of light.
      Calculate the efficiency of the lamp.   /2