Chapter 4: Thermal Physics

1. What is the thermal energy of an object?

2. What is temperature?

3. Fill in the blanks shown in Table 4.1. .

Situation	^{0} C	K	^{0} F
Water boils			
Water freezes			
Absolute zero			

Table 4.1

4. Convert 25^{o}C to Kelvin

5. Convert 180 K to ^{o}C.

6. Convert 180 ^{o}F to ^{o}C.

7. Convert 6 BTU to calories and to Joules?

8. What is heat capacity and what is its unit.

9. How much heat energy is required to raise the temperature of an object from 30 °C to 130 °C given that its heat capacity is 5.2J.

10. What is specific heat capacity and what is its unit.

11. How much heat is required to raise the temperature of 20g of water from 10°C to 20°C if the specific heat capacity of water is 4.2 J/g°C?

12. Explain Latent Heat of Fusion and Latent Heat of Vaporisation using water as your example.

13. Draw a diagram to show how a substance changes from solid to gaseous states.

14. What is heat of combustion ?

15. Explain what 1 mole of water is.

16. A 2 cm thick single-paned window in a house measures 0.65 m by 1.25m. . The temperature outside and inside of the house is 5^{O}C and 20^{O}C respectively. Determine the amount of heat energy transferred from the house in 1 hour. The thermal conductivity of the window glass is 0.84 J/s m ^{O}C.

17. How are the 3 ways or processes heat can be transferred from one place to another? Briefly describe each process.