Name of the Student:_____

Max. **Marks : 18 Marks**   **Time : 18 Minutes**

Mark Schemes

Q1

(a)   radio – 1500
ultra violet 3×10^{-8}
visible – 5×10^{-7}
X-rays – 1×10^{-11}

4

(b) 1×10^{10}Hz 10^{10}HzOK
for 4 marks

else 1×10^{10}
for 3 marks

else $3 \times 10^{8}/0.03$
for 2 marks

else v = frequency × wavelength or $3 \times 10^{8} = 0.03$f
any answer with unit Hz scores 1, 2 or 3
for 1 mark

4

[8]

Q2.

(a)   convection
air is heated by the burner / particles gain energy
air expands / particles move about more / particles move faster
air becomes less dense / particles are more spread out
air rises / particles rise - *not* heat rises
air from C moves into the heater / particles from C move into the heater to
replace it / them
any four *for 1 mark each*

4

(b)   (i)   radiation
for one mark

1

(ii)   black surface <u>radiates / emits</u> well
(*allow* absorbs and emits well) (*allow* comparison with shiny / white surfaces)

large surface area needed
high temperature (of the lumps)
any one for 1 mark

1

[6]

Q3.

    (a)   (ultrasound) waves reflected

                  accept 'bounce off'

1

       at boundary / from muscle

1

    (b)   (i)   time

1

             (ii)   speed of (ultrasound) waves

1

[4]