

Question number	Answer	Notes	Marks
12 (a)	D (by radiation); A is incorrect because conduction cannot take place through the vacuum of space B is incorrect because convection cannot take place through the vacuum of space C is incorrect because evaporation cannot take place through the vacuum of space		1
(b)	air (inside external pipe) is heated; air expands; air decreases in density (and therefore rises);	allow particles move further apart reject particles become less dense	3
(c)	idea that air entering tube is hotter than the ground; energy is transferred from air (to ground/surroundings); by conduction;	allow RA e.g. ground is cooler than air	3
(d)	black / other dark colour; (because) dark colours are better/good absorbers of radiation; air inside pipe becomes hotter / convection increases;	allow infrared / IR for radiation ignore heat	3

Total for Question 12 = 10 marks