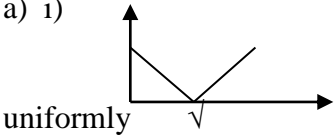
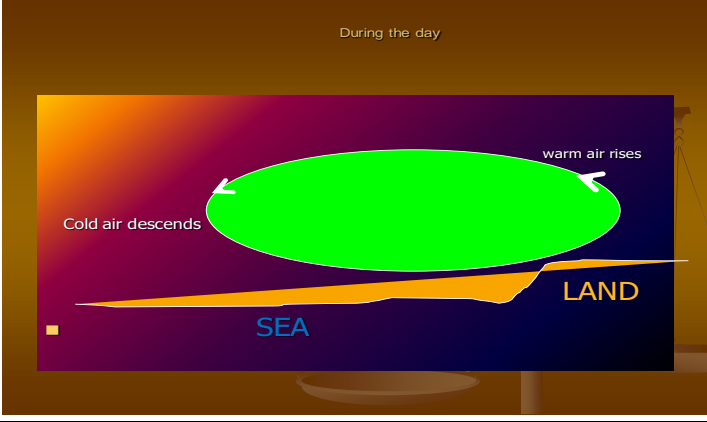


SECTION A		
Ques	Answer/Marking points	Max score
1.	Reading = 0.55cm ✓	1 mark
2.	$W = Mg$ ✓ $8N = 0.8kg$ ✓ Mass on earth = Mass on planet = 0.8kg ✓	3 marks
3.	Rate of diffusion increases with increase in temperature	2mark
4.	$F = UR$ $F = 0.15 \times 200$ ✓ $F = 30N$ ✓	2 marks
5.	Impurities/pressure ✓	1 mark
6.	i) Clockwise direction (shown on diagram) ✓ ii) Heated water expands becomes less dense and rises at point A ✓	2 marks
7.	Constant temperature ✓	1 mark
8.	Becomes less stable ✓	1mark
9.	Large temperature gradient ✓	1mark
10.	a) i)  Deccelerates then accelerates ii) $t = 3s$ ✓ b) $a = \text{slope}$ ✓ $a = -1.5m/s$ ✓	4 marks
11.	Streamlines are closer together on the upper side than the lower side ✓ hence low pressure created on top of wing ✓	2 marks
12.	Tension reduces ✓ due to increase in upthrust force ✓	2 marks
13.	$E = W = \text{Area} = \frac{1}{2}Fe$ ✓ $F = Ke$ ✓ $E = \frac{1}{2}(Ke)e$ ✓	3marks
SECTION B		
14.	a) OA=Uniform velocity ✓ AB = Stationary ✓ BC= Accelerating ✓ b) Sum of upward forces balances with Sum of downward forces ✓ c) A body remains in its state of rest or uniform motion unless compelled upon by an external force ✓ d) i) $F = -0.5 + -(0.2)10$ ✓ $= -2.5N$ ✓ ii) $F = ma$ ✓ $-2.5 = 0.2(a)$ ✓ $a = -12.5m/s^2$ ✓	10marks

15	<p>a) Conduction ✓ Convection ✓ Radiation ✓</p> <p>b) – Insert the ball in the ring when cold, it passes through ✓</p> <ul style="list-style-type: none"> <li>- Heat the ball ✓</li> <li>- Insert the ball in the ring , the ball doesn't pass through ✓</li> </ul> <p>c)</p> 	9marks
16	<p>a) Liquid is non viscous/incompressible ✓</p> <p>b) High speed ✓ Sudden change in direction ✓</p> <p>c) (i) and (ii) - show on diagram ✓ ✓</p> <ul style="list-style-type: none"> <li>- upper part, streamlines are close together hence low pressure ✓</li> <li>- Lower part , streamlines are far apart hence high pressure ✓</li> <li>- The imbalance causes the lift ✓</li> </ul> <p>d) (i) <math>A_1V_1 = A_2V_2</math> ✓ <math>(5.6/2)^2 V_1 = (1.4/2)^2 20^2</math> ✓ <math>V_1 = 25\text{cm/s}</math> ✓</p> <p>(ii) mass flux = <math>A_1V_1 d</math> ✓ ✓</p> <p style="margin-left: 40px;"><math>= 38.5\text{g/s}</math> ✓</p>	14marks
17	<p>a) Angular velocity is measured in rad/s while linear velocity is measured in m/s ✓</p> <p>b) (i) <math>w = s/rt</math> ✓ <math>w = 0.2/0.2(0.1)</math> ✓ <math>w = 10\text{rad/s}</math> ✓</p> <p>(ii) <math>v = wr</math> ✓ <math>v = 10 \times 0.2</math> ✓ <math>v = 2\text{m/s}</math> ✓</p> <p>(iii) <math>f = 2\Pi/w</math> ✓ <math>f = 6.28/10</math> ✓ <math>f = 0.628\text{ Hz}</math> ✓</p> <p>c) Upthrust reduces ✓</p>	11marks
18	<p>a) Upthrust = weight of floating object ✓</p> <p>b) (i) Mass = density x volume ✓</p> <p style="margin-left: 40px;"><math>= 100 \times 0.25</math> ✓</p> <p style="margin-left: 40px;"><math>= 25\text{g}</math> ✓</p> <p>(ii) Upthrust = Weight of the liquid displaced ✓</p> <p style="margin-left: 40px;"><math>= \frac{100}{1000} \times 1 \times 10</math> ✓</p> <p style="margin-left: 40px;"><math>= 1\text{ N}</math> ✓</p> <p>(iii) Weight of the cork <math>= \frac{25}{1000} \times 10</math> ✓</p> <p style="margin-left: 40px;"><math>= 0.25\text{N}</math> ✓</p> <p style="margin-left: 40px;">Minimum downward force required = <math>1.0 - 0.25 = 0.75\text{ N}</math> ✓</p> <p>c) Upthrust reduces ✓</p>	11marks
<b>TOTAL</b>		80