BABCOCK UNIVERSITY, ILISHAN-REMO, BASICS SCIENCES DEPT - PHYSICS/ELECT. UNIT

2016/17 PHYS 101 Test Date: 15th Nov. 2016 TIME: 40 Mins INSTRUCTION: Attempt ALL questions.

1. (a) State two (2) advantages of a Thermocouple thermometer

(2 Marks)

- (b) The e.m.f. of a thermoelectric is given by $E = \alpha(\Delta t) + \beta(\Delta t)^2$, where $\Delta t = t 273.2$, t is being the thermodynamic temperature of the hot junction. The constant α and β are related by the equation $\beta = -2.5 \times 10^{-4} \alpha$. If the temperature of a body determined with the thermoelectric is 523.2 K, calculate the equivalent temperature on the Celsius scale. (3 Marks)
- 2. (a) Define Capillarity

(1 Mark)

(b) Show, for fluid rising up in capillary pipe, that its height, h of the fluid column inside the pipe is given by $h = \frac{2\gamma cos\theta}{rcos\theta}$

where all the symbols have their usual meaning.

(4 Marks)