

# PHSG 3rd Semester Practical Examination, 2020

## PAPER: PHSG CC-3/GE-3 PRACTICAL

F.M.: 15

TIME: 1 hr

### Answer Any One Question From The Following

**1. To estimate the temperature of a torch bulb filament from resistance measurement and to verify Stefan's law.**

- a) Write down the theory to estimate the temperature of a torch bulb filament from resistance measurement and to verify Stefan's law. 5
- b) Why does the temperature increase with temperature? 2
- c) What is Draper point? 1
- d) What is Stefan's constant?. 2
- e) What is Newton's law of cooling? How does it differ from Stefan's law? 2
- f) At which region the slope of the curve  $\log_{10}P$  vs.  $\log_{10}T$  should be determined and why? 3

**2. Determination of the thermal conductivity of a bad conductor by Lees and Chorlton's method.**

- a) Write down the theory to determine thermal conductivity of a bad conductor by Lees and Chorlton's method. 5
- b) Why do you take the specimen in form of a thin disc? 2
- c) What is Bedford's correction? Can you perform the experiment without performing the correction? 4
- d) What is Newton's law of cooling? How does it differ from Stefan's law? 2
- e) What is thermal conductivity? 2

**3. Determination of the coefficient of coefficient of linear expansion of the material of a rod by optical lever arrangement.**

- a) Write down the theory to determine the coefficient of coefficient of linear expansion of the material of a rod by optical lever arrangement. 5
- b) What is coefficient of linear expansion? 2
- c) Write down the relation between coefficient of linear expansion and coefficient of area expansion & coefficient of volume expansion. 2
- d) Will the coefficient of linear expansion depend on the length of the rod? 1
- e) Why do you take time-temperature record? 2
- f) Why do you call it an optical lever? Name the two important part of a telescope. 3