THE TEXTILE ASSOCIATION (INDIA)
A.T.A. (REVISED) EXAMINATION – 2015
PARTI - PAPER
BASIC ENGINEERING SCIENCE (APPLIED PHYSICS)

Date: 24.12.2015 Marks: 50 Time: 10 am to 1 pm

Instructions:
1. Attempt three questions out of which Q1 is compulsory
2. Answer each next question on new page
3. Figure to the right indicate full marks
4. Illustrate your answers with sketches and flow chart wherever necessary
5. Use of non programmable electronic pocket calculator permissible
6. Mobile and any other communication devices are not allowed in exam hall.
7. Assume suitable data wherever necessary

Q1 Attempt any TEN of the following

a) The unit of coefficient of thermal conductivity is
   (i) Watt-kelvin-m (ii) watt/m-K (iii) J/s (iv) Joule
b) The dimensional formula for Latent heat
   (i) M⁰ L² T⁻² (ii) M L T⁻¹ (iii) M L² T⁻² (iv) M L² T⁻¹

c) Define Young's modulus and Rigidity modulus with SI units.
d) Define Viscosity? Write its dimensional formula.
e) Give some uses of X-rays.
f) Define Vapor Pressure and Absolute humidity.
g) Mention the four types of Lenses.
h) Define photoelectric effect.
i) Reynold's number determines the nature of through a tube.
j) Define Interference and Diffraction of light.
k) Define Refraction of light.
l) The Hygrometer is used to measure ...........
m) Define Polarization of light.

Q2

a. Mention the dimensions of five physical quantities.
b. Derive an expression for rise of liquid in a capillary tube.
c. What is Reynold's number? What is its significance?
Q3  a. Define the angle of contact of a liquid with a solid surface. Why does it vary for different liquids?  
   b. Explain coefficient of Viscosity. Describe an accurate method to determine the coefficient of Viscosity of a liquid. 
   c. Explain in brief moisture meter. 

Q4  a. Explain with neat figure, the construction and working of simple and compound microscope.  
   b. Mention the types of diffraction of light. What are X-rays? How they are produced? Discuss their properties.