ATOMIC ENERGY EDUCATION SOCIETY
Distant Learning Programme
Class XI Subject: Physics
Work Sheet of Chapter: Unit & Measurement (Module 2/4)

1. Which of the following is the most precise measurement?
   (1) 3×10^{-3} m (2) 0.0030 m (3) 30×10^{-4} m (4) 300×10^{-5} m
2. Zero error in an instrument introduces
   (1) Systematic error (2) Random error (3) Least count error (4) Personal error
3. We can reduce random errors by
   (1) Taking large number of observations (2) Corrected zero error
   (3) By following proper technique of experiment (4) both (1) & (3)
4. The order of the magnitude of speed of light in SI unit is
   (1) 16 (2) 8 (3) 4 (4) 7

5. A student measured the diameter of a wire using a screw gauge with least count 0.001 and listed some measurements. The most correct measurement is
   (a) 5.3 cm (b) 5.32 cm
   (c) 5.320 cm (d) 5.3200 cm
6. What do you mean by least count error? How this error can be minimized?
7. In any Vernier Callipers least count of main scale is 0.1 cm, If Vernier scale has 20 divisions and it coincides with 9 divisions of main scale then calculate the least count of vernier calipers.
8. Precise measurements of physical quantities are a need of science. For example, to ascertain the speed of an aircraft, one must have an accurate method to find its positions at closely separated instants of time. This was the actual motivation behind the discovery of radar in World War II. Think of different examples in modern science where precise measurements of length, time, mass etc. are needed. Also, wherever you can, give a quantitative idea of the precision needed.
9. A group of students measure the refractive index of glass in an experiment. In successive measurements, the readings turn out to be 1.53, 1.56, 1.52, 1.60 and 1.50. Calculate the absolute errors, relative error or percentage error.
10. Which of the following time measuring devices is most precise?
    (a) A wall clock. (b) A stop watch. (c) A digital watch. (d) An atomic clock. Give reason for your answer.