UNITS AND MEASUREMENT

***General Instructions*:** Answer all the questions. If you are unable to answer any question, go through the page number that is given against that particular question in the text book. You can find the answer.

Test Paper-I

Max marks: 30 **Time: 90Mts**

1	Define Unit?	P16	1
2	What are fundamental and derived units?	P16	1
3	Name the system of units which is internationally accepted at present	P17	1
4	Give the SI unit of measurement of Length. Also define the unit	P17	1
5	Define Candela.	P17	1
6	Briefly explain how large distances can be measured using parallax method.	P18	2
7	Calculate the angle of (a) 1^o(degree) (b) (minute of arc) and 1"(second of arc) in radians	P19	2
8	A man wishes to estimate the distance of a nearby tower from him. He stands at a point A in front of the tower C and spots a very distant object O in line with AC. He then walks perpendicular to AC up to B, a distance of 100m, and looks at O and C again. Since O is very distant, the direction BO is practically the same as AO; but he finds the line of sight of C shifted from the original line of sight by an angle $\Theta = 40^o$ (Θ is known as 'parallax) estimate the distance of the tower C from his original position A.	P19	3
9	The moon is observed from two diametrically opposite points A and B on Earth. The angle Θ subtended at the moon by the two directions of observation is 1^o 54'. Given the diameter of the Earth to be about 1.276×10^7 m, compute the distance of the moon from the Earth.	P19	3
10	The Sun's angular diameter is measured to be 1920". The distance D of the Sun from the Earth is 1.496×10^{11} m. What is the diameter of the Sun?	P19	2

11	Briefly explain how you will estimate the molecular size of oleic acid.	P20	3
12	If the size of a nucleus (in the range of 10^{-15} to 10^{-14} m) is scaled up to the tip of a sharp pin, what roughly is the size of an atom? Assume tip of the pin to be in the range of 10^{-5}m to 10^{-4} m.	P20	2
13	Match the following **GROUP-A** 1. 1 Fermi 2. 1 light year 3. 1 Astronomical Unit 4. 1 parsec **GROUP-B** a. 1.496×10^{11} m b. 3.08×10^{16} m c. 9.46×10^{15} m d. 10^{-15} m	P21	2
14	Define one parsec.	P21	1
15	Give the SI unit of mass.Give the location where the prototypes of International standard units of mass are available. Also define the standard unit of mass.	P21	**3**
16	Give the SI value of the following units a. Roentgen b. Curie c. Barn d. Carat	P18	**2**