



PHYSICS THEORY CLASS X

TOTAL: 85 MARKS

TOTAL TIME: 2 HOURS

SECTION A (44 MARKS)

THIS SECTION CONSISTS OF 22 MULTIPLE CHOICE QUESTIONS. EACH QUESTION CARRIES TWO MARKS.

01. Choose the correct answer from the given options:

- i. Work done is always equal to:
*displacement *acceleration *power *energy possessed
- ii. Which one of the following is a derived quantity?
*mass *density *length *time
- iii. A paratrooper after opening of his parachute experiences:
*retardation *acceleration *equilibrium *none
- iv. If the radius of a circular arc is double, the centripetal force acting on the body moving on it will also be:
*Doubled *Four times *One fourth *One half
- v. A 25 N force acts along the x-axis. Its y-component is
* 0 N * 2.5 N * -25 N * None of the above
- vi. If two forces of 3N and 4N are acting on a body at 90° with each other, the magnitude of resultant force will be:
*1N *5N *7N *12N
- vii. The only Scalar quantity is:
*Displacement *Force *Speed *Velocity
- viii. $\text{kg}\cdot\text{m}/\text{s}^2$ can also be expressed as:
*joule *Newton *watt *Newton sec
- ix. Power is defined as:
* Rate of doing Work * Rate of change of Position
* Rate of change of Velocity * Rate of change of Momentum
- x. Unit of light intensity is:
*N/m² *Volt * Candela *Joule

- xi. *If the velocity of a moving body decreases by equal amounts in equal intervals of time, however small they may be the acceleration of a body is said to have.*
 * Uniform and negative * uniform and positive
 * mutually perpendicular * zero
- xii. *A body is said to be in equilibrium if it is moving with:*
 * Uniform velocity * Uniform acceleration * Variable velocity * None of these
- xiii. *If a stone is tied to the end of a string and whirled in a circle, the tension in the string provides*
 * Centripetal fore * Centrifugal force * Pressure * Reaction
- xiv. *If the uniform speed of a body moving in a circle is doubled, its centripetal force become*
 * Twice * Three times * Four times * Eight times
- xv. *Heat is a form of:*
 * Energy * Power * Force * Momentum
- xvi. *Which of the following is more penetrating?*
 * α -rays * Atomic process *Radio activity *Atomic dispersion
- xvii. *According to the condition of simple harmoinic motion?*
 * $a\alpha x$ * $a\alpha-x$ * $a\alpha x$ * $a\alpha kx$
- xviii. *Resistors hving same resistance are called?*
 *Identical resistors * Non-Identical *Reciprocal *inverse
- xvix. *Potentiometers are used to measure?*
 *Potential difference * Current *Resistance *All of them
- xx. *The unit of Load is:*
 *Newton * Pascal *Joule *Ohms
- xxi. *The unit of refractive index is?*
 *m * kg *sec *None of above
- xxii. *The unit of Absolute temperature is?*
 *Kelvin * Degree celsius *Degree Fahrenheit *All of above



SECTION B (SHORT ANSWER QUESTIONS) (24 MARKS)

Attempt any three questions from this section. Each question carries two parts and each part carries four marks

02. a) Define simple Harmonic motion and explain it with an example
b) Convert 300K to its equivalent temperature on Celsius and Fahrenheit scale.
03. a) Define i) α -rays ii) β -rays iii) Nuclear fission iv) Nuclear fusion
b) Three resistors each of 10ohms are connected. Calculate their equivalent resistance in series and parallel.
04. a) Explain the construction and working of hydraulic brakes.
b) The focal length of a concave mirror is 10cm. where should an object be placed so as to get its, real image magnified twice.
05. a) Define centripetal acceleration and centripetal force and how many factors at which it depends
b) A force of 5 N is applied on an object of mass 0.1 Kg for 5 seconds. Find the work done?
06. a) Define resistance and write down its units and factors
b) Find the two rectangular components of a force of 100 N which is acting at an angle of 60° with x-axis
07. a) Define potential energy and give two points of difference between kinetic energy and potential energy
b) A car moving with a uniform acceleration attains a speed of 36 km/hr in 2 minutes; find the acceleration of the car.



SECTION C (DESCRIPTIVE - ANSWER QUESTIONS) (17 MARKS)

Attempt any 2 questions from this section. Each question carries 8.5 marks

12. Define Acceleration and Force. Derive the equation $S = V_i t + \frac{1}{2} a t^2$
13. Explain the variation in "g" with altitude?
14. Define Thermal expansion, Co-efficient of linear Expansion. Also prove $\beta=3\alpha$
15. Explain Regular and Irregular refraction. Derive mirror formula.

