XI STANDARD PHYSICS (MARCH 2019, JUNE 2019, MARCH 2020, OCTOBER 2020, AUG 2021, MAY 2022 AND JULY 2022)

5 MARK PUBLIC QUESTIONS SO FAR ….. UNIT WISE

UNIT:1 NATURE OF PHYSICAL WORLD AND MEASUREMENT

1. Principle of homogeneity + $F = m v^2 / r$
2. Simple pendulum – Solved sum 1.4
3. Propagation -1of errors + Error in division
4. Applications of dimensional analysis + 1.12 sum
5. Solved sum 1.12
6. Applications of dimensional analysis + $\frac{1}{2} m v^2 = mgh$
7. Triangulation method and RADAR method

UNIT: 2 KINEMATICS

1. Triangle law of vector addition
2. Centripetal acceleration
3. Equations of motion (3 times)
4. Equation of motion of freely falling body + Creative sum

UNIT: 3 NEWTONS LAWS OF MOTION

1. Conservation of linear momentum + Recoil of a gun (2 times)
2. Need for banking of tracks
3. Vertical motion of blocks connected to a string (2 times)
4. Method of measuring angle of repose

UNIT: 4 WORK ENERGY POWER

1. Elastic collision and one dimensional collision
2. Work – Energy theorem (3 times)
3. Two objects of masses 3 kg and 6 kg are moving with same momentum of 30 kg m s^{-1}.
   Will they have same Kinetic Energy? Will they have same speed? Prove it.
4. Momentum – K.E. relation + Solved sum 4.7
5. Inelastic collision + Loss of K.E. expression

UNIT: 5 MOTION OF SYSTEM OF PARTICLES AND RIGID BODIES

1. Moment of inertia of a uniform rod (3 times)
2. Bending of a cyclist
3. Parallel axes theorem
4. Rolling on inclined plane and expression for acceleration

UNIT: 6 GRAVITATION

1. Orbital speed + Creative sum
2. Escape speed
3. Variation of ‘g’ with altitude
4. Orbital speed definition and time period of a satellite
5. Variation of ‘g’ with depth (2 times)
6. Variation of ‘g’ with depth + Creative sum

UNIT: 7 PROPERTIES OF MATTER

1. Poise equation (2 times)
2. Surface tension – Capillary rise
3. Bernoulli’s theorem (2 times)
4. Stoke’s method – Terminal velocity
5. Types of modulus of elasticity

UNIT: 8 HEAT AND THERMODYNAMICS

1. Meyer’s relation
2. Work done in adiabatic process
3. Newton’s law of cooling (2 times)
4. Ideal gas laws and expression
5. Thermal expansion types and relation

UNIT: 9 KINETIC THEORY OF GASES

1. Kinetic interpretation of temperature
2. State and explain equipartition of energy

UNIT: 10 OSCILLATIONS

1. Horizontal oscillations (2 times) 2. Four types of oscillations (2 times)
3. Angular Harmonic oscillator

UNIT: 11 WAVES

1. Resonance air column 2. Stationary waves and their formation
3. Sonometer – Construction and frequency expression
4. Closed organ pipe (2 times)

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3 MARK PUBLIC QUESTIONS SO FAR ….. UNIT WISE

UNIT:1 NATURE OF PHYSICAL WORLD AND MEASUREMENT

1. Limitations of dimensional analysis 2. RADAR method
3. Dimensional and dimensionless variables 4. Applications of dimensional analysis
5. Gross error and minimise

UNIT: 2 KINEMATICS

1. Unsolved sum 1 2. Solved 2.9 3. Unsolved 16 4. Creative sum
5. Horizontal projection – Parabola (2 times) 6. Creative sum

UNIT: 3 NEWTONS LAWS OF MOTION

1. Types of friction + Reduce friction 2. Creative sum
3. Salient features of Static and Kinetic friction 4. Push or Pull - FBD Explanation
5. Newton's three laws of motion
6. When a cricket player catches the ball, he pulls his hands in the direction of the ball's motion. Why?

UNIT: 4 WORK ENERGY POWER

1. A heavy body and a light body have same momentum. Which one has more K.E. Why?
2. Elastic collision and Inelastic collision (2 times) 3. Momentum and K.E. relation (2 times)

UNIT: 5 MOTION OF SYSTEM OF PARTICLES AND RIGID BODIES

1. Solved 5.20 2. K.E. in rotation 3. Centre of gravity 4. Torque definition + two examples
5. Creative sum

UNIT: 6 GRAVITATION

1. Energy of a satellite expression 2. Polar satellites 3. Unsolved 14
4. Kepler's laws (2 times) 5. Weightlessness and freely falling body

UNIT: 7 PROPERTIES OF MATTER

1. Terminal Velocity expression 2. Surface tension – Factors affecting
3. We use straw to suck drinks. Why? 4. Applications of surface tension
5. Solved sum 7.11 6. Applications of viscosity 7. Streamline and turbulent flow differences

UNIT: 8 HEAT AND THERMODYNAMICS

1. Linear expansion of a solid 2. Conditions of reversible process
3. Stefan – Boltzmann law 4. Heat always flows from hot body to cold body. Why?
5. Solved sum 8.12 6. Solved sum 8.24

UNIT: 9 KINETIC THEORY OF GASES

1. Six postulates of kinetic theory of gases (2 times) 2. Degrees of freedom and examples

UNIT: 10 OSCILLATIONS

1. Laws of simple pendulum 2. Periodic and non – periodic motion with examples
3. Creative sum 4. Resonance and example

UNIT: 11 WAVES

1. Applications of reflection of sound 2. Transverse and longitudinal waves differences
3. Laws of transverse vibrations in stretched string (2 times) 4. Sum based on beats

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2 MARK PUBLIC QUESTIONS SO FAR ….. UNIT WISE

UNIT:1 NATURE OF PHYSICAL WORLD AND MEASUREMENT

1. Fundamental quantities and example 2. Two errors of systematic errors
2. $\frac{1}{2} m v^2 = mgh$ 4. $v = u + at$ 5. $E = m c^2$ - Dimensional correctness
6. Unsolved sum – 1 7. Two limitations of dimensional analysis

UNIT: 2 KINEMATICS

1. Solved 2.28 2. Scalar and Vector with examples 3. Projectile and example
4. Distance and displacement 5. Creative sum 6. Angular velocity 7. Solved sum 2.25

UNIT: 3 NEWTONS LAWS OF MOTION

1. Lami's theorem 2. Newton's second law (2 times) 3. Solved sum 3.1
4. Define inertia 5. When walking on ice one should take short steps. Why?

UNIT: 4 WORK ENERGY POWER

1. Coefficient of restitution 2. Solved sum 4.18

UNIT: 5 MOTION OF SYSTEM OF PARTICLES AND RIGID BODIES

1. Centre of mass 2. Centre of gravity 3. Radius of gyration
4. Why is it more difficult to revolve a stone tied to a longer string than a stone tied to a shorter string?
5. Law of conservation of angular momentum (2 times)
6. Creative sum 7. Torque day to day examples two

UNIT: 6 GRAVITATION

1. No lunar or solar eclipse ……. 2. Energy of a satellite is negative. Why.
2. Universal law of gravitation 4. Gravitational potential 5. Escape speed definition

UNIT: 7 PROPERTIES OF MATTER

1. Hooke's law 2. Reynold's number (2 times) 3. Creative sum based on surface tension

4. Solved sum 7.4

UNIT: 8 HEAT AND THERMODYNAMICS

1. Stefan – Boltzmann law (2 times) 2. Specific heat capacity

3. PV diagram 4. Wien's law 5. Solved sum 8.24

UNIT: 9 KINETIC THEORY OF GASES

1. Degree of freedom 2. Factors affecting mean free path 3. RMS speed

4. Factors affecting Brownian motion 5. No hydrogen in the earth's atmosphere. Why?

UNIT: 10 OSCILLATIONS

1. Soldiers are not allowed to march ……. Why? 2. Define frequency

3. Periodic and non – periodic motion 4. Simple harmonic motion definition

5. Creative sum 6. Solved sum 10.14

UNIT: 11 WAVES

1. Factors affecting velocity of sound 2. Red and blue shift

2. Solved sum 11.20 4. Solved sum 11. 15